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TRANSACTIONS AND PROCEEDINGS

AND

REPORT

OF THE

ROYAL SOCIETY of SOUTH AUSTRALIA.

VOL. XXVI.

[With Seven Plates.]

EDITED BY WALTER HOWCHIN, F.G.S.

Adelaide:

W. C. RIGBY, 74, KING WILLIAM STREET.

DECEMBER, 1902.

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CONTENTS.

PART I. (Issued June, 1902).

PAGE

DENNANT, J.: Descriptions of New Species of Corals from the Australian Tertiaries, Part IV. (Plate 1.) 1

JOHNCOCK, CHAS. F.: Notes on the Loranthaceæ of the Willochra Valley 7

MAIDEN, J. H.: On Eucalyptus behriana, *F. v. M.* 10

BLACKBURN, REV. T.: New Genera and Species of Australian Coleoptera (XXX.) 16

JOHNCOCK, CHAS. F.: Further Notes on the Botany of the Willochra Valley 31

PART II. (Issued December, 1902).

MEYRICK, EDWARD, and OSWALD B. LOWER: Revision of the Australian Hesperiadæ 38

BASEDOW, H.: Descriptions of New Species of Mollusca from the Miocene Limestone near Edithburg (Plate 2)... 130

MEYRICK, EDWARD: Descriptions of New Species of Lepidoptera (Ægophoridæ) 133

TURNER, DR. A. J.: New Australian Lepidoptera 175

STIRLING, DR. E. C.: Aboriginal Rock Paintings on the South Para, Barossa Ranges (Plates 3 and 4) 208

LOWER, OSWALD B.: Descriptions of New Genera and Species of Australian Lepidoptera 212

——————— Descriptions of New Australian Geometrina ... 248

DENNANT, J.: Descriptions of New Species of Corals from the Australian Tertiaries, Part V. (Plates 5 and 6) 255

ZIETZ, A. H. C.: List of the Edible Fish of the Lower Murray ... 265

GREENWAY, T. C., AND H. T. PHILLIPPS: Notes on the Geological Features of Southern Yorke Peninsula (Plate 7) 268

TEPPER, J. G. O.: List of the Described Genera and Species of the Australian and Polynesian Phasmidæ 278

BLACKBURN, REV. T.: New Genera and Species of Australian Coleoptera (XXXI.) 288

ABSTRACT OF PROCEEDINGS 322

ANNUAL REPORT 331

BALANCE-SHEET 332

DONATIONS TO THE LIBRARY 333

LIST OF FELLOWS, &C. 342

RULES OF THE SOCIETY 345

PROCEEDINGS, ANNUAL REPORT, AND BALANCE-SHEET OF THE FIELD NATURALISTS' SECTION 350

REPORT OF THE NATIVE FAUNA AND FLORA PROTECTION COMMITTEE 353

REPORT OF THE MALACOLOGICAL SECTION 356

TRANSACTIONS

725b

OF THE

ROYAL SOCIETY of SOUTH AUSTRALIA.

CAMBRIDGE

VOL. XXVI., Part I.

[With One Plate.]

EDITED BY WALTER HOWCHIN, F.G.S.

ISSUED JUNE, 1902.

Adelaide:

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MAY 9 1903

Descriptions of New Species of Corals from the Australian Tertiaries.

By J. Dennant, F.G.S.

PART IV.

Plate I.

[Read November 5, 1901.]

Four species, distributed among the same number of genera, are discussed in this part. I am unable to place the first species described in any existing genus, and the following new one is instituted for its reception. It is perhaps nearest to Dasmia, *Edw.* and *Haime*, but is without the threefold division of the septa assigned to that genus; moreover, the cyclical arrangement is peculiar.

Genus Holcotrochus, *nov.*

Corallum free, compressed. Septa ten, in one cycle, and abnormal in development.

Costæ corresponding to septa, broad, equal, and separated by deep grooves. Columella parietal. No epitheca.

Holcotrochus scriptus, *spec. nov.* Pl. i., figs. 1*a*, *b*.

Corallum cuneiform, with roundly-pointed base. Calice elliptical, the ratio of its major and minor axes being as 100 to 57.

The costæ form the most marked feature of this curious coral. Only ten are present, and they are equal in size, very prominent, broad at the top, and regularly tapering at the base, where they unite. Of these ten there is one at either end, and four on each of the broad surfaces of the corallum. All are ornamented laterally by a regular series of closely-set incisions or scribed markings at right angles to their length. A slender and somewhat sinuous rod-like process, mostly granular, but occasionally plain, in each of the deeply-grooved interspaces, extends from the calicular margin to the base, and serves to connect adjoining costæ. The costæ themselves and these slender rods form in fact the only wall of the corallum.

The septa, also ten in number, are continuations of the costæ, and rise perpendicularly from them to about one-sixth of the whole height of the corallum, when they bend sharply round towards the central fossa, the upper surfaces of all being horizontal and on the same level; they are coarsely granular on their sides, plain

superiorly, equal, stout throughout, but of diminished thickness towards their central terminations. For some distance down they are free, and enclose a deep, longitudinal fossa, but a little below the upper boundary of the wall they unite by stout processes to form a parietal columella.

Height of corallum, 5·5 mm.; length of calice, 3·5 mm.; breadth of calice, 2 mm.

Locality, &c.—In the Eocene strata at Muddy Creek, Victoria. Collected by Professor Tate. A single specimen (the type) has been in my cabinet for several years, but I hesitated to describe it until others came to hand. Just lately Mr. T. S. Hall showed me three rolled examples of the species which he had collected at Forsyths, on the Grange Burn, one of the sections included under the general term "Muddy Creek beds." Great care has to be exercised in collecting at Forsyths, as owing to the junction of the Miocene and Eocene there, the lower part of the section contains some derived Eocene fossils mixed with the prevailing Miocene ones. The type specimen, which is well preserved, came from an undoubted Eocene exposure just below Clifton Bank, and there is, I think, little doubt that the worn specimens collected by Mr. Hall are traceable to the Eocene. A very minute and young example of either this or a closely allied species was obtained by the same gentleman from the "Ledge" at Spring Creek.*

The next coral I place in Ehrenberg's genus Desmophyllum, but instead of six systems of septa, as in the type species *D. crista-galli*, it has eight. The number of cycles is besides not constant in the systems. Several writers have, however, drawn attention to the variability of the species of this genus in certain characters. Thus Ten.-Woods named a recent species from Fiji *D. quinarium*, in allusion to the five systems of septa present.†

Again, one of the earliest described species *D. Taurinense* Edw. and H., from the Falunien of Turin, has, according to De Fromentel, also five systems of septa.‡ In his detailed description of the same species, Michelin states that it is remarkable for ten stout septa (dix grosses lamelles), each of which is also accompanied by two very small ones.§ The base is also attenuated and not broad, as in the type of the genus. The full details and

---

* Since writing the above an example of this coral has been sent to me by Dr. Verco, who dredged it in Backstairs Passage at a depth of 22 fathoms. *Holcotrochus scriptus* is therefore recent as well as fossil. It is accompanied in the latter locality by another species of the same genus, which will be described shortly.

† On a New Species of Desomophyllum. Linn. Soc., N.S.W., 1878.

‡ Introduction à l'étude des Polypiers fossiles 1858-61.

§ Icon. Zooph., p. 39.

excellent figures given by Moseley of the two new species dredged by the Challenger may also be referred to as illustrations of the variability in the septal arrangement observed in forms belonging to the genus.*

Desmophyllum Joannense, *spec. nov.* Pl. i., figs. 2*a*, *b*.

One specimen only has been found, but it is well preserved. It is irregularly cornute in form, and gently tapering. Its basal extremity is not perfect, and I judge has been sharply broken off from its former attachment to a foreign body. The calice is open, much indented marginally, and slightly elliptical, the ratio of its major and minor axes being as 100 to 90.

Septa in eight systems and three cycles, of which the third is absent in two of the systems. The primaries are exsert, and, though unequal in size among themselves, are usually much stouter than the remaining orders. The secondaries and tertiaries also vary in size. One of the primaries, as shown in the drawing (Pl. i., fig. 2*b*), is formed of two uniting lamellæ. The total number of septa is 30, all of which project slightly beyond the wall. The latter is thin, and covered with a white, delicate epitheca, beneath which the costæ can be faintly traced as rows of very fine granules; they are apparently continuations of the septa. The epitheca is occasionally slightly wrinkled, and there are two or three small excrescences on the wall. There is no columella, and the central fossula is very deep.

Height of corallum, 13·5 mm.; diameters of calice, 5·25 and 4·75 mm.

Locality.—Eocene at Brown's Creek, near Joanna River, on the south coast of Victoria.

The third coral under notice in the present paper has been hitherto regarded as a variety of *Deltocyathus viola*, Duncan, from which it differs principally in being slightly instead of much compressed. It is, moreover, a restricted form, having, so far, been reported from Spring Creek only. Before describing it some remarks upon the generic position of its close ally, *D. viola*, are necessary.

In 1860 Tenison-Woods sent this species, under the name of *Turbinolia viola*, to Professor M. Duncan, who in describing it, first in 1864,* and again in 1870,† changed the genus to Caryophyllia. Subsequently Woods redescribed it as a Deltocyathus, at the same time giving a detailed diagnosis, which differs somewhat from that contained in Duncan's memoirs.‡ Afterwards,

*[Report on Corals—Deep Sea Madreporaria, pp. 160-2, plates iv., v., vi.
† Ann. and Mag. Nat. Hist., third series, 1864, p. 162, pl. v., fig. 1.
‡ Q.J.G.S., vol XXVI., pp. 295-6, pl. xix., fig. 1.
§ Proc. Roy Soc., New S. Wales, 1877, pp. 191-2, pl. ii., fig. 3.

however, he instituted a new genus, Notocyathus, to include, amongst several diverse forms, this particular coral.* When he referred it to Deltocyathus, he gave it a thick solid columella, but in the definition of Notocyathus he expressly states that there is no columella! Again, in 1884, Duncan, when reviewing the same species, removed it from Notocyathus to Nototrochus, a new genus specially designed to receive it. In this the columella is restored, but the pali are reduced to paliform lobes.†

I consider that Woods was right when he placed the coral under Deltocyathus. Both columella and pali are distinctly present, and, besides, there is the chevron-like arrangement of the septa so characteristic of that genus. Amongst the figures, and accompanying Duncan's descriptions, a good one of the calice is wanting. That given by Woods portrays its main features fairly well. I refer also to the figures and descriptions of the form now to be described, in which the calice, though less elliptical, exhibits a similar arrangement of the septa, pali, and columella.

Deltocyathus subviola, *spec. nov.* Pl. i., figs. 3*a*, *b*.

Corallum cone-shaped, with its anterior and posterior surfaces very slightly compressed aud the base bluntly rounded. The calice rises somewhat above the level of the wall. It is much less elliptical than that of *D. viola*, in which the ratio of the major and minor diameters is as 100 to 75, while in *D. subviola* the ratio is as 100 to 91.

Septa in six systems with four cycles. The first three orders are very exsert, the primaries rather more than the secondaries, and these again than the tertiaries. In length and thickness there is also a gradual diminution for the same three orders. The 24 septa of higher order than the tertiaries are small, and constitute the fourth cycle, there being, according to my reading of the calice, no fifth order. The total number of septa is thus 48, all of which have rounded upper margins, and radiate rows of granules on their sides.

There are two kinds of pali, viz., six short depressed ones before the primaries, and twelve others, which are both longer and higher, before the tertiaries. Each pair of the latter curve inwards and almost meet in front of the enclosed secondary septum. Lower down they are fused with this close to the columella. Superiorly, a deep groove or notch separates the pali and septa, but inferiorly they are connected.

The columella is solid and moderately long. Three prominent and equidistant papilli on its surface are in a line with the pali of the lateral primaries.

---

* Corals and Bryozoa of New Zealand. Col. Mus., 1880.

† Revision Madreporaria. Proc. Linn. Soc., Zool., vol. XVIII., p. 17.

Most specimens are well preserved up to the top of the corallite wall, which is stout, but the fragile exsert septa are usually broken off to this level. A transverse section of the calice is thus presented, in which the six secondary septa bisect as many triangular areas formed by the tertiaries and their accompanying pali, with the straight primaries dividing the intervening spaces. The slender free quaternaries are rarely preserved except close to the wall. Usually the pali may still be recognised as raised processes uniting with the columella.

From the fractured example of a corallum figured it will be seen that the pali are connected in the calicle by a regular series of stout transverse bars. No such junction occurs between neighbouring septa, the interseptal loculi remaining open throughout.

The costae are continuations of the septa, granular, in four cycles, and separated by distinct grooves. The primary and secondary are subequal, and the rest then slightly diminish in size according to order. The first two orders are free to the base; the tertiaries and quaternaries unite from a fourth to a fifth above this, and then continue to it as a single costa.

The dimensions of the type, of which the calice is figured, are —Height of corallum, 7·5 mm.; diameters of calice, 5·5 mm. and 5 mm. It is a medium sized individual, with an almost perfect calice. Larger specimens are as much as 10 mm. high, with correspondingly larger calices.

Locality, &c.—Very abundant in the Eocene of Spring Creek, 13 miles south of Geelong. Though closely allied to *D. viola*, it cannot be mistaken for that species; not only is it rounder in form, but the costæ are broader, and the grooves between these are narrower.

Parasmilia Hermani, *spec. nov.* Pl. i., figs. 4*a*, *b*, *c*, *d*.

The corallum has a very small pedicellate base. It varies in form, and may be horn-shaped, subturbinate, or even tall and subcylindrical. The calice is deep and usually circular, but sometimas elliptical. The septa are thin and slightly exsert near the margin, when they slope rapidly down to the central fossa; rows of delicate granules on their sides follow the curve of their upper margins. They are in six systems, with four cycles. The primaries and secondaries are equal, the tertiaries nearly as long, and the quaternaries much shorter; all are free throughout.

The endotheca is generally scarce, but in the type calice some septa are united by dissepiments for a short distance from the wall. There is a strong epitheca with circular growth ridges at irregular intervals on the surface of the corallum, and the costæ, which are continuations of the septa, can be traced beneath it as slender interrupted lines almost to the base.

The form selected as type is subturbinate and very little curved. It is 28 mm. in height, with a broad circular calice 18 mm. in diameter (figs. 4*a*, *b*). The horn-shaped corallum (fig. 4*c*) is 32 mm. high, and the diameters of its slightly elliptical calice are 16 mm. and 15 mm. A tall cylindrical variety, though broken off at some distance from the base, is yet 37 mm. high. The best preserved calice in my collection belongs to a fractured corallum of similar outline ; it is circular and 13 mm. in diameter (fig. 4*d*). Smaller examples than any of these, mostly horn-shaped and tapering, are also common.

Locality, &c.—Abundant in the Eocene of Brown's Creek, and rare at Hamilton Creek. These are neighbouring beds in the Aire River district, Victoria, both of which were discovered by Mr. Kitson in the latter part of 1899.

The species name is in compliment to Mr. H. Herman, Acting-Government Geologist, who, in conjunction with Mr. Kitson, assisted the late Professor Tate and myself in examining the tertiary deposits of this district in the early part of the present year.

EXPLANATION OF PLATE.

Fig.

1. *Holcotrochus scriptus*—*a*, corallum, 6 diam.; *b*, calice, 8 diam.
2. *Desmophyllum Joannense*—*a*, corallum, 2-5 diam.; *b*, calice, 5 diam.
3. *Deltocyathus subviola*—*a*, section of a corallum, showing internal structure of the calicle, 3 diam.; *b*, calice of type specimen, 6 diam.
4. *Parasmilia Hermani*—*a*, corallum, nat. size ; *b*, calice, 2 diam.; *c*, corallum of another specimen, nat. size ; *d*, calice of a third specimen, 3 diam.

Notes on the Loranthaceæ of the Willochra Valley.

By Chas. F. Johncock.

[Read November 5, 1901.]

The late Professor Tate, in his paper on "The Host Plants of the Australian Loranthaceæ," read before the Australasian Association for the Advancement of Science, January, 1898, remarks on the probable role played by some then undetermined species of birds in the distribution of *Loranthus*, and quotes Dr. Ramsay,* F.L.S., New South Wales, as saying of *Dicæum hirundinaceum*:—This species is universally dispersed over the whole of Australia; feeds on berries and fruits of various kinds, but seems to prefer those of *Loranthus*. This plainly accounts for the distribution of the *Loranthus* all over the districts frequented by the *Dicæum*, in which it is locally known as the "Mistletoe Bird."

In this district the Loranthaceæ occurring are *L. exocarpi*, *L. linearifolius*, and *L. pendulus*. *L. linearifolius* is found only in a few localities, and then not plentifully; almost exclusively on *Acacia sentis*, and only in the more liberally watered parts of the plains.

L. exocarpi is found on *Acacia sentis*, *Cassia Sturtii*, *Bossiaea Battii*, and *Santalum lanceolatum*. *L. pendulus* grows almost exclusively, and in some places in striking profusion, on *Santalum lanceolatum*. These last two occur in the scattered tracts of scrub which abound in varying area and frequency all along the eastern side of the valley.

In one instance only have I observed *Dicæum hirundinaceum* in this district, and then only a solitary pair, within the space of five years. Therefore, comparing the striking abundance with which *L. exocarpus* and *L. pendulus* are found, and the extreme rarity of *Dicæum*, one is compelled to seek other agents for the distribution of the plants in question.

Careful and patient observation convinces me that the birds playing this role are (1) the *Acanthiza*, known as the yellow-rumped tom-tit; and (2) *Ptilotus sonora*. While the *Acanthiza* does not actually eat the berries of *Loranthus*, it very frequently uses the pendant branches as a site for its nest. This alone

* Proc. Linn. Soc., N.S.W., Second Series, vol. I., p. 1,093, 1886.

almost insures the distribution of the seeds by adherence to the birds' feathers. Moreover, I have on a few occasions seen the viscid berries clinging to the backs and wings of these birds; and I once watched an *Acanthiza* rid itself of the adherent seed by removing it with its bill, and then by stroking its bill on a branch actually transfer the seed to a very favorable situation on the tree, a *Santalum lanceolatum*. This is no doubt a frequent occurrence in the nesting season of *Acanthiza*, which is at the time when the berries are ripe.

Ptilotus sonora.—This bird, now something of a pest in the fruit gardens in the hills, is fairly plentiful in this district, and I have very often observed it eating the ripe berries of *L. pendulus* especially, with very evident relish—almost greedily. It is rather a timid bird. This disposition in a locality such as this is perhaps caused through the presence of numbers of small hawks in the scrubs and the rather scant cover afforded. When suddenly startled it shows evident fear, and at once will endeavor to make good its escape by dashing with all speed from bush to bush, mostly using *Bossiaea* as its refuge, and on this species *(Bossiaea Battii)* the Loranthaceæ very frequently occur. While I cannot state that I have had visible proof that *Ptilotus* is the agent distributing the *Loranthus*, as above suggested, nevertheless, I feel confident that such is the case. In the watercourses on the sides of the hills, and for a short distance outward on the plain, *Acacia sentis* occurs abundantly, and *Bursaria spinosa* fairly frequently. In these positions *Ptilotus* is sure to be met with, and here, too, *L. exocarpi* is common. In these creeks, therefore, the habits of the bird and its association with the *Loranthus* point to its agency as the distributor of the seed. The wattle bird is occasionally to be met with in these creeks, and possibly may play some part also in the distribution, but I have as yet no evidence to offer with regard to this bird, although I hope to be able shortly to establish proof of its being a means of distributing the seeds of *L. linearifolius*.

Turning now to the question of "particular adaptation of the host plant to the requirements of its particular parasite," it may be worthy of note that in the case of *L. exocarpi* I have observed a tendency in the leaves to become very thick and fleshy where the plant occurs on *Bursaria*. In the case of *L. pendulus* there is a striking difference between the thinner, cleaner, and darker leaves of the plant as it occurs on the *Eucalypti* in the southern parts of the colony, and the thicker, duller, and lighter-colored appearance of the plant as it grows here in the Eremian region. But whether the differences noted are to be ascribed to any peculiarity in the nature of the host plants, or whether the widely different climatic conditions may not be the cause, I cannot say.

Yet another peculiar feature may be worth notice, and that is that while *Eucalyptus rostrata* grows luxuriantly along Spring Creek in its course through the Willowie Pastoral Company's estate, and also in the Willowie Forest, I have not so far observed either *Dicæum*, *Ptilotus*, or *Loranthus* in either tract. Nor again does the parasite appear, or only with extreme rareness, on *Casuarina quadrivalvis* in the Pekina Ranges, where once more *Ptilotus* and *Dicæum* are almost (or quite) absent.

Finally, while I recognise that the area I have had under observation is limited, to quote from Professor Tate's paper once more, "I have thought that a useful purpose might be served by bringing together additional facts as the outcome of field observations," and that a little more might be added to our knowledge of the distribution of these parasites.

On Eucalyptus Behriana, F. v. M.

By J. H. Maiden, F.L.S.

Government Botanist of New South Wales, Honorary Fellow Royal Society, South Australia.

[Read November 5, 1901.]

I desire to bring under notice *Eucalyptus Behriana*, F. v. M., which has long been looked upon as a peculiarly South Australian species, and some of the type localities are South Australian. It is of special interest to South Australian botanists by reason of the light it throws upon variation in the genus.

Following is the original description of the species :—

"Fruticose; leaves alternate, coriaceous, somewhat shining, lanceolate or ovate, acute, slightly oblique, thinly veined, dotted; umbels pedunculate, panicled, few-flowered; flowers small, nearly sessile; lid hemispherical, blunt or minutely apiculate; tube of the calyx obconical, bell-shaped, nearly twice as long as the lid; fruit half-ovate, sessile, not contracted at the top; valves of the capsule inclosed; seeds brown, streaked.

"In arid plains and on stony hills near the Avoca, Murray, and Gawler Rivers, and in Bacchus Marsh."—*Trans. Vict. Inst.*, I. (1855), 34.

At about the same time Mueller sent specimens to Miquel who was then engaged on his "Stirpes Novo-Hollandas." The latter independently described the species, and as his description is published in Ned. Kruidk., Arch. IV., 140 (1856,* not 1859, as mentioned in B.Fl.), an excessively rare work, I quote it, here :—

"39. *Eucalyptus Behriana*, Ferd. Müll. *E. pruinosa*, Behr. Herb. non Schauer. Fruticosa, ramulis teretiusculis summo apice compresso-angulatis foliisque subtus pruinosis, his ovato-lanceolatis inæquilateris acuminatis, basi in petiolum contractis, coriaceis, penniveniis, umbellis capitatis paucifloris (1-7-floris), in paniculis axillaribus lateralibus et terminalibus confertis, pedunculis umbellarum teretiusculis, calycis tubo parvo obconico-turbinato, operculo hemisphærico mutico vel apiculato quam tubus duplo breviore."

"In Nova Hollandia australi legit cl. Dr. Behr., autumno.

* 1856 is the date of the green paper-covered paper Part mainly occupied by Miquel's paper.

Teste Cl. Müller prope *E. polyanthemos* inserenda. Frutex 6-12 pedalis. Folia ad 3 poll, longa ½ lata."

Some of Mueller's type specimens of *E. Behriana* came from Bacchus Marsh, in Victoria, where also occurs a Box, the herbarium specimens of which have a very similar facies to that of *E. Behriana*. (The Box is a small fruited form of *E. hemiphloia*, F. v. M.) Mueller himself has confused his own *Behriana* with this form of *hemiphloia* in the distribution of herbarium specimens, and as others have followed his example, it is desirable that the confusion should be terminated if possible.

E. Behriana is always a Mallee. It grows in scrubs, and usually is five to ten feet high, though it sometimes forms small trees, which have rarely a diameter of as much as nine inches. The bark is always smooth, and commonly of a dirty-white colour, or, according to one observer, of "a dark oily-looking green." The timber is red. The flowers and fruit are small, with a panicled inflorescence, the opercula being blunt, and the fruit shiny and dark coloured. It bears seed abundantly. The leaves are comparatively broad, and are shiny.

As showing how difficult it sometimes is to deal with closely related forms, we have two specimens, apparently identical, sent by Mr. W. K. Bissill, of near Bendigo, Victoria, to the Melbourne Herbarium at different times. Mueller labelled one "*E. hemiphloia*, a form verging to *Behriana*," and the other "*E. Behriana*, transit to *E. hemiphloia*." We have also specimens, apparently identical, from the Mallee country of Victoria labelled variously by Mueller *E. hemiphloia*, *E. Behriana*, and *E. largiflorens*. All these are Mueller's own species, and I can give no better illustration of the way in which it is sometimes difficult to discriminate between species from herbarium material alone.

E. Behriana, *F. v. M.*, and E. hemiphloia, *F. v. M.*

The confusion between these two species has been already referred to. It occurs with the small-fruited variety of *hemiphloia*, which in many herbaria goes under the name of *parviflora*. This in itself would be an appropriate name, but one at least of the specimens tentatively so named by Bentham (B. Fl., III., 217) is an Ironbark. I therefore propose for the small-fruited variety of *hemiphloia*, so extensively distributed over the greater part of the range of the species, the name *E. hemiphloia*, F. v. M., var. *microcarpa*. It is synonymous with *E. Woollsiana*, R. T. Baker, Proc. Linn. Soc., N.S.W., XXV., 684; R. H. Cambage, *ib*, 714. Mueller (Eucalyptographia) says :—

"*E. Behriana* approaches closely to *E. hemiphloia* from which it mainly differs in

"1. Never attaining the stately dimensions of that species.

"2. Bark remaining smooth from succession of outer layers.

"3. The leaves are as a rule (subject, however, to exceptions) shorter and broader.

"4. The panicles are less ample, by which means the umbels are not rarely arranged in a racemous manner.

"5. The flowers and fruits are smaller, their stalklets are less abbreviated, the lid is shorter and blunter, and the fruit-valves are less deeply enclosed."

To which may be added—Their timbers are totally different, that of *E. Behriana* being of a red colour; that of *E. hemiphloia* is the ordinary pale-coloured Box, whose appearance and properties are thoroughly well known.

In the field the species could never be confused for a moment, but as expert botanists have confused them in the herbarium, it is idle to contend that they do not possess a considerable degree of similarity. Perhaps this note will be the means of causing closer attention to the matter.

Under *E. Behriana*, F. v. M., Bentham (B.Fl., III., 214) describes a var. *purpurascens*, F. v. M., originally collected by Wilhelmi at Lake Wangaroo, South Australia. At p. 217 (under *E. hemiphloia*) he refers to South Australian specimens (Memory Cove and Kangaroo Island, R. Brown; Port Lincoln, Wilhelmi), and says—"In Mr. Brown's S. Australian specimens the leaves are smaller, but in Wilhelmi's they are the same as in the northern ones, and I can find no character to distinguish them. Both R. Brown and F. Mueller had given them the M.S. name of *E. purpurascens*. R. Brown's plant (collected 1802-5) was distributed from the British Museum under the number 4,735.

I have examined the type, labelled by Mueller "*E. purpurascens*, Ferd. M. Scrub of Port Lincoln, January, 1855. 4-6'. Carl Wilhelmi." Afterwards the same specimen was labelled by Mueller "*E. hemiphloia*, var.," with the note—"Pedicels none; lid short and blunt." All these specimens referred to *E. Behriana* and *E. hemiphloia* are, in my opinion, identical. They are usually easily recognised by their purple filaments, and may be referred to under the name *E. hemiphloia*, var. *purpurascens*. Judging from herbarium specimens alone, it is easy to see how botanists wavered, placing them at one time under *E. hemiphloia* and at another under *E. Behriana*.

E. Behriana and E. populifolia.

In Eucalyptographia, under *E. populifolia*, Mueller compares that species with *E. hemiphloia*, and refers to the latter species as known only from New South Wales and Southern Queensland, "and there confined to the coast districts or near to them." The

range of *E. hemiphloia* has been much extended since then, and I now desire to lay emphasis on the point that *E. hemiphloia*, in its var. *microcarpa*, has a closer similarity to *E. populifolia* than is usually supposed.

First of all, the following specimens have all been named *E. Behriana* or *E. hemiphloia* by some botanists. They are, however, all, in my opinion, *E. populifolia* :—

"Bastard Box," W. Baüerlen, Tarella, Wilcannia, August, 1887, No. 62. Bark persistent; tree, 30-50 feet. Some of the leaves are large and coarse; similar leaves are found in the Bourke district. Others are lanceolate, and even narrow lanceolate.

Mossgiel (J. Brückner).

Wentworth (Mrs. Forde).

"*E. Behriana*, a kind of Box." No locality, but probably received from Mrs. Forde (Herb. Woolls). This is the specimen in regard to which Dr. Woolls (Plants of N.S.W., p. 52) announced *E. Behriana* as occurring in New South Wales, and I believe his determination was based on the plate of *E. Behriana* as depicted in Eucalyptographia, which it matches admirably. I have stated below that I think the fruits are those of *E. populifolia*.

E. populifolia has usually egg shaped or "poplar" leaves, which as a rule are different enough from those of var. *microcarpa* as it is commonly observed in western New South Wales, but lanceolate leaves are marked in specimens of *E. populifolia* from Ivanhoe, via Hay, N.S.W.; Wentworth, N.S.W.; Suttor River, Queensland; not to mention other localities. It is, in fact, strange as it may at first appear, not always easy to separate var. *microcarpa* from *E. populifolia*, not only as regards narrow-leaved forms, but as regards those that are broad-leaved. The leaves of *E. populifolia* have usually a wavy margin, and are usually, perhaps always, shiny—unless they have been collected wet. The venation of *E. populifolia* is usually more prominent. The habit of the two trees is different, that of *E. populifolia* being more erect than that of var. *microcarpa*. The timber of *E. populifolia* is red, as is also that of *E Behriana*, but that of *E. hemiphloia* var. *microcarpa* is pale-coloured, as already indicated. The fruit of *E. populifolia* is not constricted at the orifice as in *E. hemiphloia* and its forms. (That of *E. Behriana*, as depicted in Eucalyptographia is not constricted, and I believe that fruits of *E. populifolia* have been depicted in error). Both have racemose inflorescence. *E. populifolia*, Hook, does not appear to have been recorded from South Australia. But in view of the New South Wales localities I have indicated which approach the South Australian border, I should not be surprised to hear of its occurrence in the latter State.

E. Behriana and E. largiflorens.

Mueller (Eucalyptographia) defines the difference between *E. Behriana* and *E. largiflorens* to be

1. The bark of the latter persists.
2. The leaves are conspicuously narrower, of thinner consistence, of duller hue, finer veined, and better provided with oil-dots.
3. Its panicles are more spreading.
4. The lids (at least often) are double, and the stamens not constantly all fertile.

In the field the species are at once separated by the large size of *E. largiflorens*, which has rough bark up to the small branches. The timber of both is red. In the herbarium I imagine that they would be readily separated by the broad, shiny leaves of *E. Behriana*, to mention no other characters.

E. Behriana and E. odorata.

Mueller (Eucalyptographia) remarks that while *E. odorata* could not be easily mistaken for *E. Behriana*, the former is discriminable by the mainly axillary inflorescence and persistent bark. *E. odorata* is a fairly large tree, while *E. Behriana* is a Mallee; the former is rough-barked, while the latter is smooth. The timber of both is red. I cannot think that there is any real difficulty in regard to the discrimination of the two species from herbarium material alone.

E. Behriana and E. incrassata, var. dumosa.

I think there is a greater similarity to *E. incrassata*, Labill, var. *dumosa*.

RANGE.

South Australia.

"39. Maerz. *Euc. Behriana*, Ferd. Mueller. *Euc. pruinosa*, Behr., non Schauer. Fruticose 6-12 pedalis. *E. polyanthema* proxima videtur (Müller)."

Besides those localities mentioned in the original description, Mueller quotes (Eucalyptographia) "in the hilly forest region of Wirrabara, near Crystal Brook, and Mount Remarkable on deep marly clay-soil" (J. E. Brown), and quotes Dr. Behr, "in the scrubs of Sandarac-Cypresses (*Callitris*) near the Gawler River."

Prof. Ralph Tate, in his Flora of South Australia, states that it is found in the northern agricultural areas, the Port Lincoln district, Kangaroo Island, and south of the Murray Desert. A few more specific localities for *E. Behriana* are desirable, as regards South Australia.

VICTORIA.

Bacchus Marsh (Mueller). A type locality.
Swan Hill, Murray River (J. G. Luehmann), 1890.
Mailee District (C. Walter), 1889.
Yarram Biack (C. Walter), 1886.
Wimmera (J. Reader).
Nhill (St. Eloy D'Alton).

NEW SOUTH WALES.

Mallee, Wyalong (H. Deane), about 1890.

Wyalong (Forester J. G. Postlethwaite), April, 1892. Height, 20′; diam., 6″.

Wyalong and Barmedman (R. H. Cambage). "Broad green-leaf Mallee." September, 1900.

Wyalong (W. S. Campbell), October, 1901.

In Proc. Linn. Soc., N.S.W., XXIV., 624, Mr. Deane and I gave a number of N.S.W. localities for *E. Behriana*, which are, however, those of *E. hemiphloia*, var. *microcarpa*. We followed Mueller in confusing the species, as has already been explained.

Further Notes on Australian Coleoptera, with Descriptions of New Genera and Species.

By the Rev. T. Blackburn, B.A.

[Read April 8, 1902.]

XXX.

STAPHYLINIDÆ.

[ALEOCHARIDES.]

POLYLOBUS.

I have received from Mr. Lea specimens named *P. insecatus*, Fvl., *acceptus*, Oll., and *notus*, Oll. They are certainly not *Polylobi* nor even true *Aleocharini* but belong to the *Gyrophænini*. I believe Mr. Lea arrived at the names by comparison with the late Mr. Olliff's specimens, and I should say that they are probably identified correctly with the insects to which Mr. Olliff assigned those names, the last two agreeing well with his descriptions. I should have considered it impossible that the latter author could have regarded the insect received by me from Mr. Lea as *P. insecatus*, Fvl., as really that insect, were it not that in describing the two other species named above he said that they approached *P. insecatus*, Fvl. (though it should be noted that elsewhere he spoke of "the insect to which I refer the name *P. insecatus*" indicating that he did not claim certainty for his determination). As a fact it is about as far from agreement with M. Fauvel's description as any *Aleocharid* could well be, its facies being quite that of the genus *Gyrophæna* (whereas Fauvel says that *P. insecatus* has the facies of *Oxypoda exigua*), its pronotum and elytra being scarcely visibly punctulate except in the former having a few coarse punctures and the latter a very sparse inconspicuous puncturation, the *Gyrophæna* type of sculpture (whereas Fauvel calls those parts in *P. insecatus* "creberrime subtilissime punctatis") and its being particularly nitid even for a *Gyrophæna* (whereas Fauvel calls *P. insecatus* "vix nitidulus"). There seems then to be no doubt that *P. insecatus*, Olliff (nec Fauvel), *P. notus*, Oll., and *P. acceptus*, Oll., belong to the *Gyrophænini*. I am unable to refer them confidently to their genus in that group as, like Mr. Olliff, I am unable to obtain access to the diagnosis of *Brachida;* moreover none of the speci-

mens are in condition that allows of their labial palpi and ligula being examined. I see, however, no reason to place them elsewhere than in the genus *Gyrophœna* of which they have the facies completely and with which they agree in the large prominent eyes, pronotum margined at the base and furnished with a few large discal punctures, the sinuate hindmargin of their elytra, the presence of well-defined sexual characters on the sixth dorsal segment of the hind body, &c., &c.

[TACHYPORIDES.]

BARRONICA.

The diagnosis of this genus was published in Tr. R. Soc., S.A., 1895, p. 202, where I stated that I felt extreme difficulty in determining whether it ought to be placed near *Myllœna*, or ought rather to be associated with the *Tachyporides*, and gave the balance in favor of the former place. I have since come to the conclusion that the genus is identical with *Leucocraspedum*, Kraatz, founded for a small *Staphylinid* from Ceylon, and to which M. Fauvel subsequently assigned a species from N.S. Wales. I have not seen Kraatz's diagnosis of *Leucocraspedum*, but I think I know Fauvel's species as one that I have taken near Sydney, with which my *Barronica* seems to be congeneric. M. Fauvel places the genus in the *Tachyporini*, and I think he is right in so placing it, as in spite of its extremly *Myllœna*-like facies, the form of its maxillary palpi and the insertion of its antennæ are not those of the *Gymnusini* (to which *Myllœna* appertains).

LEUCOCRASPEDUM.

L. (*Barronica*) *scorpio*, Blackb. This species is at once distinguishable from all its congeners known to me (including *sidneense*, Fauv.) by its antennæ entirely testaceous, except a feeble infuscation of the apical joint. A long series of specimens presents no variation in this character.

L. validum, sp. nov. Minus nitidum; pube subtili ferruginea vestitum; nigrum, antennarum articulis basalibus 4 testaceis, pedibus palpisque plus minusve rufescentibus, elytris vix picescentibus; antennis brevibus, articulis 6°-10° gradatim magis fortiter (6° sat fortiter) transversis; capite prothorace que confertim subtilissime, elytris dense subtiliter vix rugulose, abdomine minus subtiliter minus confertim, punctulatis; prothorace subsemicirculari, convexo, fortiter transverso, basi utrinque sinuata, angulis anticis nullis posticis (superne visis) acutis retrorsum directis; elytris quam prothorax vix latioribus, ad suturum quam hic paullo longioribus, conjunctis sat transversis; abdomine retrorsum gradatim fortiter angustato.

Maris segmento dorsali 7° apice emarginato, feminæ late rotundato. Long., $1\frac{2}{3}$ l.

Easily distinguishable from *L. sidneense*, Fauv., by the pale coloring of the antennæ not extending beyond the 4th joint and joints 6-10 being quite (7-10 very) strongly transverse, joint 10 fully twice as wide as long. Also distinguished by its larger size, robuster build, evidently longer elytra, less nitid and more evidently punctulate pronotum, less slender hind body, darker palpi and legs, &c. I refer to this species examples from the Victorian mountains having elytra a trifle shorter and slightly more closely and finely punctulate, which, however, may possibly represent a distinct species.

Tasmania (Mount Wellington).

L. lugens, sp. nov. Minus nitidum; pube subtili ferruginea vestitum; totum nigro-piceum; antennis sat brevibus, articulis 5° 6° que vix (7°—10° sat fortiter, gradatim magis fortiter) transversis; capite prothoraceque confertim perspicue, elytris crebre minus subtiliter subasperatim, abdomine vix magis fortiter (apicem versus sparsim) punctulatis; prothorace fere ut *L. validi* conformato; elytris quam prothorax subangustioribus, ad suturam huic longitudine æqualibus, conjunctim leviter transversis. Long., 1 l. (vix).

Easily distinguishable from its described Australian congeners by its entirely dark antennæ, palpi and legs. Compared with *Sidneense* it differs also by its wider form, its much less nitid and much more conspicuously punctulate head and prothorax and by the distinctly closer subasperate puncturation of its elytra. The abdominal segments of my unique example are unfortunately much drawn into each other and therefore cannot be described very exactly. The specimen is a female and has the apex of its seventh dorsal segment widely rounded. This segment seems to be more finely and sparsely punctulate than in the other described Australian species. It is a trifle smaller (allowing for the shortage of the hind body) than any of my specimens of *sidneense*. The base of the elytra is distinctly narrower than the base of the prothorax.

L. elegantulum, sp. nov. Minus nitidum; pube subtili testacea vestitum; testaceum, abdomine rufo, antennarum articulis apicalibus 4 infuscatis, abdomine setis nigris instructo; antennarum articulis 6°—10° sat fortiter transversis; capite prothoraceque confertim subtilissime (minus perspicue), elytris confertim subtilissime (nihilominus nullo modo obsolete), abdomine minus subtiliter multo minus confertim, punctulatis; prothorace fere ut *L. validi* conformato sed perspicue minus fortiter transverso; elytris quam prothorax

paullo latioribus, ad suturam huic longitudine sat æqualibus conjunctim sat transversis; abdomine retrorsum gradatim sat fortiter angustato. Long., 1 l. (vix).

Readily distinguishable from its described Australian congeners by its entirely different coloring, its less strongly transverse prothorax, the very evidently finer puncturation of its elytra and hind body, &c. There is a slightly infuscate tone about the hind part of its elytra.

N. Queensland; taken by the late Mr. Cowley.

TABULATION OF CHARACTERS.

A. Antennæ entirely dark ... ... *lugens*, Blackb.
AA. Antennæ (except apical joint) entirely pale yellow ... ... *scorpio*, Blackb.
AAA. Antennæ with at least basal four joints pale and at least apical three joints dark.
B. General color black or dark piceous.
C. Subapical joints of antennæ very strongly transverse ... ... *validum*, Blackb.
CC. Subapical joints of antennæ much less strongly transverse ... ... *sidneense*, Fauv.
BB. General color testaceous or pale rufous ... *elegantulum*, Blackb.

CILEA.

Under this generic name Mr. Lea (in Pr. L. Soc., N.S.W., 1898, pp. 531 and 532) described two species, and neither of them seems to me really to belong to *Cilea*. *C. rivularis* differs from *Cilea* by, *inter alia*, its very short tarsi (very much shorter than their tibiæ), the basal joint of which is very little elongated. Mr. Lea has been so good as to send me some specimens of this insect, but unfortunately they are so much clogged with gum tragacanth that it is impossible to treat such minute creatures as would be necessary to feel certain of what their generic place is. It is certainly not *Cilea*, however. Their tarsi seem too short even for *Tachinus*, but such examination as I can make does not reveal any other objection to placing them in that genus. I suspect, however, that an examination of fresh specimens would justify their having a new generic name. They are very much smaller than any *Tachinus* known to me.

C. amabilis.—I have four specimens from various parts of Victoria (the name confirmed by Mr. Lea). The non-carinate mesosternum of this insect separates it at once from *Cilea*, and it seems to be certainly an ordinary *Tachyporus*. I should add that Mr. Lea has himself expressed doubt as to whether his *amabilis* is a true *Cilea*.

TACHINUS.

T. novitius, Blackb. Since I described the male of this insect (from the Australian Alps) I have taken additional specimens near Fernshaw, in the Dividing Range, and am now

able to furnish further particulars. The species is a very variable one in respect of the coloring of the elytra and hind body, which vary from almost uniform reddish testaceous through forms in which the hind body is infuscate and the apical portion of the elytra infuscate or black, to a form in which the elytra and hind body are entirely black. The female is a very remarkable insect, having the elytra produced into a kind of lobe at their sutural angle, and from the apex of the lobe an aggregate of 4 or 5 spiniform setæ (very closely packed together) project hindward. The apical segment of the hind body is unfortunately a good deal withdrawn into the preceding segment in my female specimen, but I think it is trilobed dorsally, the middle lobe long, narrow, and acute, the lateral lobes vertical. The front tarsi of the female have their basal three joints moderately wide, the fourth very small, while in the male the basal four joints are all rather strongly dilated. I should add that I feel some uncertainty as to the structure of the seventh ventral segment in the male. In all my specimens a process of considerable size projects beyond the seventh segment, the suture between which and the seventh segment is not always easy to see, but the true apex of the seventh segment seems to be quadrifid, the median two teeth small and widely separated, the lateral ones larger. The seventh ventral segment is deeply emarginate in the male, widely rounded in the female. I think this species is a true *Tachinus*.

[STAPHYLINIDES.]

XANTHOLINUS.

X. Olliffi, Lea. This insect does not appear to me to differ from *X. phœnicopterus*, Fvl., a species to which Mr. Lea does not refer in his description. It is at any rate extremely close to it, and if distinct the difference should be specified. Mr. Lea sent me an example some time ago of his *Olliffi*, and it agrees perfectly with the description of *phœnicopterus*, which I had not previously been able to identify confidently with any Australian specimen, although M. Fauvel reports it as widely distributed in Australia.

[PÆDERIDES.]

LATHROBIUM.

L. australicum, Solsky. This insect should, I think, be referred to the genus *Dicax*.

[OXYTELIDES.]

ŒOPHRONISTUS (gen. nov. *Oxytelidarum*).

Caput magnum; palpi maxillares sat breves, articulo ultimo acuminato; oculi parvi, in capitis parte declivi laterali siti; antennæ geniculatæ, 11-articulatæ; prothorax (speciei

typicæ) modicus, supra fere æqualis (transversim late leviter impressus); elytra (speciei typicæ) punctulata; pedes modici; tibiæ anticæ extus emarginatæ et dentatæ (*Scaritidarum* simulantes); tarsi 3-articulati (?), articulo apicali quam ceteri conjuncti multo longiori; abdomen haud marginatum.

Seems to be near *Osorius* which however has five-jointed tarsi. The tarsi of this new genus consist of two extremely short joints and a third very much longer than the others together. I am not quite sure that there is not a very minute joint before that which appears to me to be the basal one, and I could not resolve the doubt without damaging my unique specimen. There are, however, at any rate only three joints that can be distinguished under a Coddington lens. The insect for which I propose this name is very easily recognisable as an *Osoriid* with less than five tarsal joints and with front tibiæ resembling those of a *Scaritid*.

Œ. australicus, sp. nov. Cylindricus; nitidus; setis brevibus subtilibus nonnullis instructus; obscure ferrugineus, capite metasternoque magis infuscatis; capite quam prothorax parum angustiori vix breviori, sparsius subtilius punctulato, antice truncato, supra antennarum basin spatio minuto rufo lævi tuberculiformi instructo, fronte leviter planata; oculis sat parvis, parum convexis, superne haud manifestis; antennis modicis, articulis basali sequentibus 3 conjunctis longitudine æquali (2° quam 3^us^ paullo longiori et latiori, 3—6° parvis inter se sat æqualibus submoniliformibus, 7°—10° multo majoribus brevibus transversis, 11° angustiori conico); prothorace leviter transverso, antice truncato, ab apice ad partem medianam leviter (hinc ad basin fortius sinuatim) angustato, mox ante medium transversim late leviter depresso, fere ut caput punctulato sed basin versus puncturis sat magnis nonnullis impresso, sat anguste marginato, angulis posticis obtusis; elytris quam prothorax paullo longioribus, irregulariter punctulatis (sc. puncturis parvis cum nonnullis magnis sparsim intermixtis); scutello modico subtriangulari; abdomine sparsim sat fortiter punctulato; tibiis anticis intus sinuatim contortis, extus dentibus 2 (altero mediano compresso permagno, altero anteapicali paullo minori vix compresso,—his spinulis parvis obsitis) et unco acuto apicali armatis; tibiis intermediis fere ut antici sed intus rectis et extus dentibus paullo minoribus; tibiis posticis fere simplicibus, extus minute crenulatis sparsim longe spinuloso-ciliatis. Long., $1\frac{2}{3}$ l.; lat., $\frac{1}{2}$ l. (vix).

I have been especially careful to describe this insect very fully on account of my not having been able to define with certainty

the characters that require dissection for their determination; its anterior tibiæ resembling those of a *Scaritid* ought to render its identification easy. The eyes cannot be seen at all when the insect is looked at from above.

Victoria; I have forgotten the circumstances of capture.

BLEDIUS.

B. Cowleyi, sp. nov. Subnitidus; obscure ferrugineus, capite nigro, prothorace piceo-nigro, antennis (his apicem versus fere nigris) pedibus et abdomine subtus testaceis, mandibulis rufis; capite opaco vix manifeste punctulato, inter oculos fovea mediana impresso, sutura clypeali arcuata; oculis magnis, fortiter convexis, fortiter granulatis; prothoraee quam caput vix latiori, modice transverso, longitudinaliter profunde sulcato, grosse sat crebre punctulato; elytris crebrius sat subtiliter (sed nullo modo indistincte) punctulatis, quam prothorax paullo longioribus; abdomine subnitido, creberrime subtilissime punctulato. Long., $1\frac{3}{4}$ l.

This species is probably near *capitalis*, Fvl., from which, however, it evidently differs *inter alia*, not only by its darker color, but also by its puncturation. *B. capitalis* is described as having its pronotum "*subtiliter*" and its elytra "*vix fortius*" *punctulatis* (implying that the elytral puncturation is less fine than that of the pronotum), whereas in the present species the pronotum is impressed with large coarse punctures (fully as coarse as in the European *B. fracticornis*, Payk), while the elytral puncturation is much finer than in *B. fracticornis*.

Queensland; taken near Cairns by the late Mr. Cowley.

B. Adelaidæ, Blackb. This species must, I think, be removed from *Bledius* and placed in *Trogophlœus*.

B. pontilis, sp. nov. Minus nitidus; breviter albido-pubescens; piceus, elytris pallide testaceis (circa discum leviter infuscatis), antennis piceo-testaceis basin versus dilutioribus, pedibus rufo-testaceis; capite creberrime subtilissime subaspere punctulato, inter antennas leviter bi impresso, oculis valde prominentibus, grosse granulatis; prothorace quam caput paullo latiori, sat fortiter transverso, longitudinaliter subtiliter canaliculato, creberrime subtilissime punctulato; elytris confertim sat subtiliter (quam pronotum multo minus subtiliter) punctulatis, quam prothorax sat longioribus; abdomine sat nitido, subtilissime punctulato. Long., $1\frac{1}{2}$ l.

Not unlike the European *B. atricapillus*, Germ., but evidently larger and *inter alia* the prothorax much wider; also probably resembles *B. convexifrons*, Fvl., but that species is said to be much smaller than *B. atricapillus*, and to have its prothorax

"*parum transversus*," whereas in the present species the prothorax is notably large aud wide, a character that also distinguishes it *inter alia* from *B. Caroli*, Blackb., to which it is also allied. From a certain point of view the non-infuscate disc of each elytron appears as a faint pale spot.

S. Australia; at Murray Bridge.

Tabulation of Species of Bledius.

As I have now described 8 *Bledii*, it seems desirable to furnish a tabulated statement of their characters. Of the 5 Australian species described by M. Fauvel I unfortunately know only one, and as that learned author has not happened to describe minutely all those parts of his species which I find lend themselves most conveniently to tabulation I am unable to include in my tabulation the four of his species that I have not seen. The same remark applies also to the one *Bledius* that Sir W. Macleay described. It is, however, quite clear from the descriptions that all those five are very different from those I have described.

A. Elytra quite distinctly punctulate.
  B. Pronotum coarsely and deeply punctured (like that of *B. fracticornis*, Payk.
    C. Eyes comparatively small. Basal joint of antennæ dark ... . *minax*, Blackb.
    CC. Eyes much larger. Basal joint of antennæ pale ... ... *Cowleyi*, Blackb.
  BB. Pronotum not coarsely and deeply punctured.
    C. All the basal four joints of the antennæ much longer than wide ... . *insignicornis*, Blackb.
    CC. Antennæ not having their basal four joints elongate.
      D. Pronotum opaque.
        E. Elytra very closely punctulate ... *injucundus*, Blackb.
        EE. Elytra much less closely punctulate.. *ovensensis*, Blackb.
      DD. Pronotum very nitid ... ... *infans*, Blackb.
AA. Elytra indistinctly (not more distinctly than in *Trogophlœus exiguus*, Er.) punctulate.
  B. Eyes extremely prominent and very coarsely granulate.
    C. Prothorax very large, scarcely narrower than the elytra, strongly transverse ... *pontilis*, Blackb.
    CC. Prothorax much smaller, notably narrower than the elytra, feebly transverse ... *Caroli*, Blackb.
  BB. Eyes feebly convex and feebly granulate ... *phytosinus*, Fvl.

OXYTELUS.

O. wattsensis, sp. nov. Mas. Robustus; sat nitidus; niger, elytris vix picescentibus circa suturam (præsertim versus apicem) rufescentibus, pedibus testaceis, exemplorum nonnullorum mandibulis apicem versus rufescentibus; capite magno (quam prothorax vix angustiori), postice sparsim dupliciter (subtiliter et sat fortiter) punctulato, haud

striolato, fronte inter tuberculos antennarios arcuatim depressa, vertice medio longitudinaliter foveato; oculis sat magnis, minus convexis, minus fortiter granulatis, longitudinaliter vix ultra capitis partem medianam pertinentibus; antennis brevibus, articulis 1° quam sequentes 3 conjuncti vix breviori 2° parvo quam latiori parum longiori 3° elongato (quam 2^us^ circiter dimidia parte longiori) 4° 5° que minutis moniliformibus vix transversis (quam 2^us^ sat minoribus) 6°—10° transversis (gradatim magis fortiter, 10° quam longiori circiter triplo latiori) 11° breviter conico fortiter transverso, articulis basalibus 4 glabris nitidis (ceteris opacis pubescentibus); prothorace quam longiori duplo latiori, quam capitis pars postica magis fortiter magis crebre punctulato, haud striolato, 3-sulcato et latera versus impresso (fere ut *O. sculpturati*, Grav.), lateribus bicarinatis, parte inter carinas verticali; elytris fortiter transversis, quam prothorax haud longioribus, fortiter minus striolatim punctulatis; abdomine alutaceo vix manifeste punctulato, segmento 6° ventrali ad apicem tuberculo armato ante tuberculum impresso.

Feminæ capite quam prothorax multo angustiori, pone oculum brevi, antice quam maris multo minus profunde depresso, cum pronoto, magis crebre magis fortiter punctulato, vertice multo magis inæquali, segmento ventrali 6° simplici. Long., 2 l.; lat., $\frac{3}{5}$ l.

Resembling *O. melas*, Fvl., in build but somewhat more elongate and *inter alia* with the pronotum and elytra very differently sculptured. Perhaps also bears a general resemblance to *O. scabrellus*, Fvl., but differs *inter alia multa* from that species by its very strongly clavate antennæ and its non-strigose head.

Victoria (near Fernshaw on the Watts R.) and Tasmania.

O. flavior, sp. nov. Mas. Præcedenti (*O. wattsensi*) affinis; piceo-brunneus, nonnihil flavescens, capite antennis (basi excepta) elytris (indeterminate, sed præsertim apicem versus) abdomine (maculatim) et corpore subtus (maculatim) plus minusve infuscatis, pedibus (genubus anguste piceis exceptis) testaceis; capite postice et prothorace quam præcedentis multo magis crebre magis fortiter (fere ut præcedentis feminæ) punctulatis; statura minus lata magis elongata; cetera ut *O. wattsensis*.

Feminæ capite quam maris multo minori. Long., $1\frac{3}{5}$—2 l.

The female differs from that of the preceding species very little except in respect of color and of its narrower and more elongate form. In the male the sculpture of the head and pronotum is

very much coarser and closer than in the male of *O. wattsensis*, —this difference being especially conspicuous on the portion behind the eye where in *wattsensis* the surface is very nitid and has only a few very fine punctures (intervals among the punctures four or five times as large as a puncture) while in the present species the punctures are much larger and closer. The antennæ of *wattsensis* are a little more strongly clavate than those of *flavior*, both resembling the antennæ of *O. melas*, Fvl., and being much more strongly clavate than in most European *Oxyteli* (e.g., *sculpturatus*, Grav.).

Victoria (Dividing Range and Australian Alps).

O parumpunctatus, sp. nov. Fem. sat robustus; sat nitidus; niger, elytris mandibulis pedibusque rufis, femoribus plus minusve infuscatis; capite quam prothorax sat angustiori, antice depresso fortiter crebrius (postice magis subtiliter magis sparsim) punctulato, haud striolato; oculis sat magnis, minus convexis, minus fortiter granulatis; antennis modicis, modice clavatis, articulis 5°—10° transversis; prothorace quam longiori sat latiori, fere ut capitis pars postica punctulato, obsolete 3—sulcato et latera versus late minus leviter impresso; elytris fortiter transversis, quam prothorax parum longioribus modice latioribus, fere ut prothorax (sed paullo magis fortiter, obsolete striolatim) punctulatis; abdomine sat nitido sparsim subtilius punctulato. Long., 2 l. (vix).

The strong sparse even puncturation of the elytra, with scarcely any trace of striolation distinguishes this species from its previously described Australian congeners. Its eyes are moderately large, but notably smaller (and less strongly granulate) than those of *O. sculptus*, Grav. Its antennæ are much shorter than in that species and are rather strongly clavate, but somewhat less strongly than in *O. melas*, Fvl. Its pronotum is not laterally bicarinate as are those of so many of the Australian *Oxyteli*. In this it agrees with the insect that I take to be *O. vulneratus*, Fvl., which seems to be its nearest ally, and from which it differs *inter alia* by the still feebler sulcation of its pronotum as well as by the more nitid surface of its abdomen, and especially by the much more sparse puncturation of its elytra.

Victoria; in the Alpine district.

[PIESTIDES.]

GLYPTOMA.

I am able to report the occurrence in Australia of two species of this genus, which has not hitherto been recorded as Australian. It can be at once distinguished from the others of

the Australian *Piestid* genera which have their abdomen unmargined by its tarsi consisting of only three joints.

G. sculptum, sp. nov. Obscure ferrugineum; vix subnitidum; subglabrum; vix perspicue punctulatum; capite longitudinaliter obtuse 3—carinato; antennis brevibus robustis, articulis basalibus 7 moniliformibus 8°—10° transversis 11° breviter subconico, articulo basali quam sequentes (clavæ exceptis) paullo majori; prothorace transversim subquadrato, retrorsum leviter angustato, supra valde inæquali (interrupte inæqualiter obtuse longitudinaliter multicarinato), in disco planato, quam caput paullo latiori vix longiori, angulis posticis valde acutis, lateribus vix arcuatis; elytris quam prothorax sat brevioribus, carinis discoidalibus circiter 4 obtusis longitudinalibus ornatis Long., 1 l.; lat., $\frac{1}{4}$ l.

The only previously-described *Glyptoma* with which I am able to compare this species is the Hawaiian *G. Blackburni*, Shp. It does not seem to differ from that insect by any character likely to be generic; as a species, however, it differs widely by *inter alia* its very much smaller size and very much shorter elytra, as well as by its evidently less opaque surface.

Victoria.

G. sordidum, sp. nov. Præcedenti (*G. sculpto*) affinis; capite subobsolete 3—carinato; oculis magis prominulis; antennis minus robustis; pronoto in disco planato parum inæquali, utrinque versus latera subtiliter 2—carinato, angulis posticis minus acutis; elytris quam prothorax circiter tertia parte longioribus; cetera ut *G. sculptum*. Long., $\frac{3}{4}$ l.

This species can be at once distinguished from the preceding by its very much longer elytra, and notably smaller size. It also differs by the much less uneven surface of its head and prothorax and by its evidently convex eyes (in *G. sculptum* the eyes scarcely stand out distinctly from the general outline). The sculpture of the head consists of the disc being longitudinally and very widely and feebly convex, with a much narrower and somewhat more evident longitudinal convexity on either side near the eye. The pronotum is on the disc, almost even, but flattened, with a vague depression in the middle of the flattened portion and a feeble arched transverse sulcus near the base (in *sculptum* the disc is occupied by strong obtuse carinæ confusedly interrupted so as to seem like seriate tubercles from a certain point of view, and a strong arched transverse sulcus near the base); the lateral part on either side bears two fine raised lines (in *sculptum* these are quite strong costæ). The sculpture of the elytra is much the same in the two species.

N. Queensland; given to me by Mr. Koebele.

LISPINUS.

L. sulcipennis, sp. nov. Subnitidus; piceo-niger, pedibus et abdominis apice rufis, nonnullorum exemplorum abdominis segmentis postice angustissime testaceo-marginatis; capite minus crebre punctulato, antice longitudinaliter 2-impresso; antennis sat brevibus, articulo apicali quam præcedens manifeste minus lato; prothorace leviter transverso, fere ut caput sed minus crebre (parte mediana longitudinali anguste lævi) punctulato, utrinque sulco sat elongato (hoc externe prothoracis margine cariniformi valde incrassato contento) impresso, lateribus leviter sinuatis, angulis posticis sat acutis; elytris quam prothorax parum latioribus sat longioribus multo minus fortiter multo minus crebre punctulatis, stria subsuturali alteraqua (hac mox ante humerum sita) integris profunde impressis; abdomine inæqualiter (a basi ad apicem gradatim minus crebre minus fortiter) punctulato et longitudinaliter strigato, segmentis punctis singulis magnis utrinque impressis. Long., $4\frac{1}{2}$ l.; lat., $\frac{1}{2}$ l.

Readily distinguishable from the other known Australian *Lispinus* by the sulciform stria which is placed close to the beginning of the lateral declivity on each elytron. A species from New Caledonia seems to agree with it in this respect (except that in the latter the stria is described as "fine")—though in other respects very different. The sculpture of the abdomen becomes finer and more sparse conspicuously from base to apex of each segment and also slightly from base to apex of the whole abdomen. In some examples each segment is narrowly and conspicuously edged with testaceous behind, and in others there is no trace of that coloring. The difference is not caused by the greater or less display of a connecting membrane.

N. Queensland (collected by the late Mr. Cowley, of Cairns).

[HOMALIIDES.]

HOMALIUM.

H. tasmanicum, sp. nov. Sat latum; parallelum; sat depressum; rufo-ferrugineum, antennis apicem versus elytris postice abdominisque disco infuscatis; capite fortiter transverso, sparsius fortius punctulato, in clypeo utrinque impresso, ante ocellos profunde anguste longitudinaliter sulcato, ad basin sat truncato; oculis modicis, in capitis parte antica sitis; antennis modicis, articulis basali sat elongato 2° parvo 3° quam hic sat longiori 4° 5° que quam 2^{us} paullo minoribus submoniliformibus 6°—11° fere nigris (6°—10° transversis, 6° quam 7^{us} minori, 7°—10° inter se sat æqualibus, 11° quam 10^{us} sat longiori); prothorace quam longiori fere duplo

laticri, fere ut caput punctulato et quam hoc vix latiori; disco obsolete inæquali, latitudine majori ante medium sita, lateribus arcuatis postice subsinuatis, angulis posticis obtusis bene definitis; elytris quam prothorax fere duplo longioribus vix latioribus minus fortiter magis crebre punctulatis; abdomine subopaco, creberrime subtilissime punctulato. Long, $1\frac{2}{5}$ l.; lat., $\frac{1}{2}$ l.

The large head of this species,—about the same size as the prothorax,—gives it a facies that suggests the thought of *Phlœobium clypeatum*, Er.; it seems however to be a true *Homalium*, presenting the characters Lacordaire attributes to the Tribe *Homalides* and agreeing with *Homalium* generically in its comparatively long elytra, its unarmed mandibles and its hind tarsi with their basal four joints short, equal and simple. The irregularities of the disc of the prothorax consist in its being flattened, the flattened space being bounded on either side by a space (extending nearly to the lateral margin) which separately is feebly convex; in this convex portion there is a feeble rounded impression near the lateral margin. I have a *Homalium* in my collection taken on the Victorian mountains which differs from the unique example described above in being smaller (long., $1\frac{1}{5}$ l.), its general color darker (ferruginous *brown* rather than *red*), its head notably smaller as compared with the prothorax and its prothorax smaller as compared with the elytra. I cannot specify any other difference between the two and am disposed to think them male and female of one species with sexual characters more or less analogous to those of *Anthophagus*.

Tasmania.

H. Morrisi, sp. nov. Modice latum; minus parallelum; minu- depressum; piceum, antennis basi palpis pedibusque dilutis oribus, prothoracis lateribus elytrorum lateribus (præsertim ad humeros) et abdominis lateribus apiceque plus minusve dilutioribus; capite modico crebre punctulato, utrinque ante ocellos longitudinaliter late sulcato (sulcis ad apicem continuis sed ad partem mediam subobsoletis); antennis modicis, articulis basali sat elongato 2° sat brevi 3° quam 2^{us} paullo longiori 4° 5° que inter se sat æqualibus quam 2^{us} paullo brevioribus 6°—10° longitudine inter se sat æqualibus sed gradatim latioribus 11° manifeste longiori; prothorace sat transverso, quam caput paullo minus crebre punctulato, in disco foveis ovatis 2 impresso, lateribus sat late deplanatis, angulis posticis rectis; elytris quam prothorax fere duplo longioribus, crebre subrugulose strigosc - punctulatis; abdomine supra creberrime subtilissime punctulato, subtus coriaceo opaco et crebre leviter æqualiter punctulato, minus sparsim aureo-pubescenti. Long., $1\frac{1}{5}$—$1\frac{1}{2}$ l.; lat., $\frac{2}{5}$ l.

Extremely like the European *H. rivulare*, Payk, and colored quite similarly. Placed beside *H. rivulare*, it is seen to differ as follows:—The puncturation of its head pronotum and elytra is considerably closer, that of the elytra is also different in character (the punctures being much confused and run together by longitudinal and oblique strigosity), the ventral segments are opaque (being densely coriaceous and also covered with somewhat close and even, but lightly impressed puncturation), and much more closely clothed with fine golden hairs; the tarsi are very evidently more slender, and the elytra are distinctly less elongate.

S. Australia; taken near Adelaide by Mr. P. D. Morris.

[PROTEINIDES.]

Of this sub-family of the *Staphylinidæ*, which has not been previously recorded as Australian, I have before me two Australian species, for which it seems necessary to form a new genus. Lacordaire places in this tribe the genus *Glyptoma*, of which I have described some species above; Kraatz, however, places the latter among the *Piestides* on account of the form of its hind trochanters, and I have adopted his reference.

ANEPIUS (gen. nov. *Proteininorum*).

Palpi maxillares modici, articulo ultimo fere filiformi, quam penultimus multo longiori; caput breve transversum (ut *Megarthri*); oculi sat magni parum prominuli; ocelli nulli; antennæ (ut *Phlœobii*) elongatæ, 11 articulatæ, articulis basalibus 2 quam sequentes 5 robustioribus, 3°—7° elongati-obconicis, 8°—11° vel. 9°—11° clavam laxam formantibus; prothorax transversus, fere ut *Phlœobii* conformatus; elytra abdominis basin tegentia; abdomen breve, minus late marginatum, postice angustatum; pedes modici; tarsi breves, inter se sat æquales, quam tibiarum dimidium breviores, articulis basalibus 4 brevissimis subdilatatis (apicali quam ceteri conjuncti vix breviori); corpus minus depressum, grosse punctulatum, minus dense pubescens.

Having only a single specimen each of the insects for which I propose this generic name, I am unable to state those of the characters which would require dissection for their determination, and it is possible that I may have quoted as generic some characters that the discovery of additional species may prove to be merely specific. The essential characters distinguishing the genus among the *Proteinides* (as diagnosed by Kraatz) are its very short tarsi with basal four joints subdilated, and together scarcely longer than the fifth joint, together with the absence of a frontal ocellus, elongate antennæ (like those of *Phlœobium*) and a head resembling that of *Megarthrus*. In facies it resembles *Megarthrus*.

A. raucus, sp. nov. Nigro-piceus, pedibus dilutioribus; subnitidus; capite confertim subtilius, prothorace crebre subgrosse, elytris grosse minus crebre, abdomine antice grosse postice subtilius rugulose punctulatis; capite utrinque longitudinaliter impresso; antennarum clava indeterminate 4—articulati; prothorace longitudinaliter 4—impresso (partibus impressis externis minus perspicuis), angulis posticis vix emarginatis elytris quam prothorax circiter duplo longioribus. Long, $1\frac{1}{3}$ l.; lat. $\frac{2}{3}$ l.

The sculpture of the pronotum consists of a fairly distinct (but not at all sharply defined) wide longitudinal impression—widest and deepest near the base—on either side of the middle, which (between the impressions) is somewhat strongly convex; these impressions are followed externally by another feeble convexity, between which and the lateral margin is another longitudinal impression, but this latter impression is scarcely traceable except in the middle of its length. Thus the pronotum might also be described as having three longitudinal obtuse convexities, between and outside which the surface is vaguely and unevenly depressed.

Victoria; Dividing Range.

A. Koebelei, sp. nov Ferrugineus, pronoti disco et abdominis lateribus infuscatis; capite crebre sat leviter nullo modo subtiliter, prothorace minus crebre sat fortiter, elytris minus crebre sat profunde sat grosse, abdomine fere ut prothorax, punctulatis; capite utrinque longitudinaliter impresso et circum marginem liberum manifeste reflexo; antennarum clava 3-articulata; prothorace sat transverso, sulco longitudinali mediano instructo, angulis posticis perspicue (fere ut *Megarthri depressi*) emarginatis; elytris quam prothorax fere sesquilongioribus. Long., 1 l.; lat., $\frac{2}{3}$ l. (vix).

So unlike the preceding (*H. raucus*) in most respects as to suggest hesitation about associating the two generically;—but they agree in what seems to me the essential character that prevents their being placed in any of the old *Proteinid* genera,—i.e. the structure of the tarsi, and therefore I think are best left together for the present. The present species is much more like *Megarthrus* in facies than is the other,—especially in respect of its prothorax,—longitudinally uni-sulcate and having the hind corners very conspicuously emarginate.

Australia (taken by Mr. Koebele; exact locality unknown).

Further Notes on the Botany of the Willochra Valley.

By Chas. F. Johncock.

[Read May 6, 1902.]

In the Handbook of the Flora of Extra-tropical South Australia, by the late Professor Tate, ed. 1890, p. 294, in defining the divisions of the Eremian Region, he says of District "S", "it overlaps 'M' and 'N.'"

The head of the Willochra Valley lies within District "N," and is covered by the overlap. These notes, which are the outcome of six years' careful work, largely refer to this overlap, and it is in the hope that they may prove useful in addition to the annotated schedule in the "Flora;" that they may do something towards completing the botanical knowledge of this interesting district; and that they may perhaps lighten the labors of other amateurs, I submit them to the notice of this Society.

Some of the notes refer to the purely overlapping species; some again refer to plants I believe hitherto unrecorded for this district, while others refer to plants which, though now fairly plentiful, have most probably been introduced through pastoral and agricultural operations.

In every case my observations have been carefully and thoroughly made, and, wherever opportunity arose, as carefully repeated and verified. In cases where I had any doubt I always submitted my identifications to Professor Tate for verification. I can therefore confidently affirm the correctness of the details given below.

1. Order Cruciferæ.

i. Barbarea vulgaris. 1/10/97, &c.

Only recorded for Adelalde district. Very common near Willowie township, &c. Usually stunted, but in favorable situations very tall and robust. Never eaten by stock. Evidently introduced in seed wheat, &c.

ii. Sisymbrium cardaminoides. 23/9/99, &c.

Recorded for Cooper district; fairly common in gullies on west of Coomooroo Hill, but not out on the plains.

III. GEOCOCCUS PUSILLA (?). 10/9/98, &c.

Plentiful in Willowie township. This plant was dealt with in detail by the late Prof. Tate in his paper on "Dimorphism in Cruciferæ," read before this Society on October 4, 1898.

IV. CAPSELLA PILOSULA.

In this plant the leaves, as the plant grows here, show great divergence from the *obovate* form. They often approach to lanceolate, and to oblong, and may be entire, slightly notched or almost pinnate. The leaf form seems to vary with the situation of the specimen, and also with its nutrition.

2. Order Malvaceæ.

ABUTILON OTOCARPUM.

I discovered about a dozen plants in one small area in March, 1898. They reappeared in the same place in '99. They were then eaten off by travelling stock and since then have not grown. This species is given as not nearer than the Cooper district.

3. Order Zygophylleæ.

ZYGOPHYLLUM AMMOPHILUM. 28/10/00, &c.

Occurs plentifully in overflowed areas in wheatfields. Not widely distributed, but not rare within certain areas. Given for the Districts C, W, and M. It thus occurs east, west, and north of this locality, and on considerations to be mentioned later may be taken as fairly common in District S.

4. Order Amarantaceæ.

PTILOTUS ALOPECUROIDES. 29/9/99, &c.

Fairly abundant in the neighborhood of Willowie and surrounding plain. Given for all districts around this one (N). The plant occurs in all favorable situations, and should be included as for District N.

5. Order Urticaceæ.

URTICA INCISA.

Near all townships, in gardens and stock yards, and luxuriantly in places on the Willowie Station, near Melrose. Only given for southern parts of the State. Most probably introduced from the south with garden or field seeds, and in the fleeces of travelled sheep.

6. Order Casuarinæ.

I. CASUARINA QUADRIVALVIS. 29/9/00

Commonly in Pekina Range, west of Orroroo; not hitherto recorded for District N. Also on Mount Remarkable.

II. CASUARINA GLAUCA. 24/5/98

Plentifully in scrub lands. One of the overlaps from District S.

NOTE.—Since sending in my paper on the Loranthaceæ I have found growths of *L. pendulus* on *C. quadrivalvis*. On this host the *Loranthus* has the darker-green thinner-leaved form, as in the southern districts, instead of the paler and fleshier form on *Santalum*, *Bursaria*, *Bossiaea*, &c., out on the plains in this region.

7. Order Leguminosæ.

I. TEPHROSIA PURPUREA. 22/10/97

Melrose Creek; rather rare. Given only for the Finke district. Verified by Prof. Tate.

II. KENNEDYA PROSTRATA. 22/10/97

Mount Brown Station, and near Wilmington and Melrose, where it occurs fairly frequently. Perhaps introduced from southward among seed wheat or garden seeds, or in one of the methods below.

III. CASSIA STURTII. 16/9/96

In any scrubs; very common plant. One of the overlaps.

IV. ACACIA SENTIS. 23/10/97

Plentiful along creeks and damp situations. Also an overlap.

V. ACACIA HAKEOIDES. 2/10/96

Near creeks; rare. Also an overlap.

VI. ACACIA MICROCARPA. 14/9/00

On Coomooroo Hill and near Booleroo Creek. A rare shrub. Given for the Murray district.

8. Order Santalacæ.

I. SANTALUM LANCEOLATUM.

Common in scrubs. An overlap.

II. CHORETRUM SPICATUM. 15/9/00, &c.

In the mallee country north of Booleroo Centre. Not recorded nearer than Murray district.

III. EXOCARPUS SPARTEA. 22/10/97

On Mount Remarkable. Certified by Professor Tate. Recorded for the F, M, and A districts. I discovered only two trees, both vigorous and well-grown, on the eastern slope of the Mount. I had no time to search for others, but as these two were not near each other doubtless a search would show more specimens.

9. Order Cucurbitaceæ.

I. Memordica Charantia. 27/6/99

A solitary specimen in Burke's Creek, Coomooroo Hill. Belongs to the Finke District.

II. Melothria Maderaspatana. Sept./99

Willowie township. An overlap.*

10. Order Loranthaceæ.

Loranthus pendulus.

Booleroo Centre—Sept./98. Pekina Hills on *C. quadrivalvis* —Oct./01. Also plentifully on *S. lanceolatum* in this neighborhood. Not recorded for District N hitherto. Recorded for District W. Also dealt with in paper read Nov. 5, 1901.

11. Order Goodeniaceæ.

I. Goodenia pusilliflora. Sept./99, &c.

An overlap.

II. Scaevola spinescens (?)

A local variety showing deviations from the typical form. I record its occurrence here in view of the possibility of its proving to be a new species. Occurs fairly freely in the neighborhood of Willowie township.

12. Order Solanaceæ.

I. Solanum lacunarium. Sept./98

Occurs in Melrose Creek, south of Mount Remarkable. Recorded for Districts S and W. May, therefore, be an overlap. Referred to Prof. Tate.

II. Solanum ellipticum. 27/5/99

Coomooroo hill. Also an overlap. Prof. Tate.

13. Order Coniferæ.

Callitris cupressiformis. June, '96, &c.

Plentiful in scrubs, and in the Pekina hills near Pekina Nob. In the mallee lands it is quite a common tree. Not hitherto recorded for any region north of the Adelaide district, so far as I am aware.

14. Order Orchideæ.

Pterostylis pedunculata. Sept./98

On the southern spurs of Mount Remarkable. Frequent in the sheltered gullies south-west from Melrose. Not hitherto recorded

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* Does not appear every season.

for any locality but Adelaide district. Referred to Prof. Tate, and certified by him *in. lit.* to the writer.

15. Order Liliaceæ.

I. Thysanotus exasperatus. Sept./96, &c.

Very plentiful in favorable seasons in this neighborhood and further southward. An overlap from District S.

II. Xanthorrhœa quadrangulata.

On Mount Remarkable—28/10/97. On Pekina hills—12/98. I have been informed that it grows on the Ranges near Mount Brown also. Not recorded nearer than Adelaide district. It grows very freely in the above areas. I referred specimens to Prof. Tate.

16. Order Gramineæ.

Alopecurus geniculata. 20/11/00

Very rare. Willowie township. An overlap.

17. Order Filices.

Lindsæa linearis. 23/10/99

Melrose Creek, south of Mount Remarkable. In fair quantity in sheltered spots. Not recorded nearer than Adelaide district.

The following plants also occur:—

I. Nitella (?) sp. At Willowie Springs, in brackish pools.

II. Spirogyra. Willowie Forest (Mar./00) and at Willowie Springs (July/01).

III. Funaria hygrometrica. In favorable situations, as walls, rocks, &c.

IV. Monostroma (?) sp. At Willowie Springs, with Nitella.

These notes would be incomplete without a statement of the probable explanations of the presence of the above-named plants in this locality. I shall divide them into three classes:—

I. The overlaps from District S (and W);
II. The sporadic genera;
III. The plants from Adelaide district, &c.

I. The "Overlaps."

The frequency of these overlaps appears to me to demand the southward extension of District S as far as Goyder's line. Many plants appearing in District N are limited to a narrow strip lying north of, say, Booleroo Creek. This strip is almost wholly

the Eremian or saltbush character; and the difference between the country lying on either side of the line is very marked. Even short distances will clearly demonstrate the limits of the 10-inch rainfall area, in many places, as proved by the harvest returns, the clearly defined edge of the mallee land, and equally plainly followed margin of the bluebush, &c. Once Goyder's line is crossed, going northward, such trees and shrubs as the mallee, *Casuarina*, *Melaleuca*, and different species of acacias are practically absent; and Salsolaceæ, *Cassia*, *Bossiæa*, the Eremian species of Santelaceæ, Eremophilæ, Zygophylleæ, and other characteristically Eremian forms become plentiful. Similarly many of the smaller plants have the same limit. Since boundary lines have been laid down for all the other districts, it would be convenient to define districts N and S in this locality, and such a boundary I feel certain is supplied by nature and science in "Goyder's line."

II. The Sporadic Genera and Species.

These must, I think, make their appearance largely by the transport of the seeds in the dust which is driven long distances from the north and north-west by the sirocco-like stormy winds of midsummer and early autumn. These winds travel at high speeds, have great powers of transporting dust and fine grit, or any light material, and seem, by a peculiar "bearing down" undulatory manner of blowing, to scoop up and raise to great heights the light loose surface material on the soil. May not seeds often be included in the dust, and thus be borne great distances, and when alighting in favourable spots become established for a few seasons at least?

Another manner of transport would very probably be in the intestines of migratory birds. Seeds of many plants, leguminoseæ, loranthaceæ, &c., would bear this treatment, and in many cases would actually benefit by it. This region is visited annually by many birds at nesting time, coming from the Far North. Such are quails, the black-faced lark, dotterels, cockatoo parrots, and shell parrots, among others.

The fleeces of sheep—often travelled great distances still, and necessarily more so when there were no railways—may be accountable for the dissemination of many species. Indeed, a more likely or more effective means of seed transport would be difficult to imagine.

The hoofs of horses, sheep, and cattle, if carefully examined when having adherent mud or dry clay will often yield grass seeds, and no doubt a careful and systematic examination would be rewarded in the detection of many other kinds.

The feet of shepherds' dogs carry clay, and often seeds in the

hollows under the feet and the spaces between the toes. Dogs are often lamed by the irritation caused by the presence of seeds in the situations named. As these animals often travel great distances with shepherds and drovers, there is at any rate the possibility that they play some part in carrying seeds, even though it may be granted they do but little.

The spores of *Nitella*, *Spirogyra*, &c., may be transported by wind, but more likely adhering to the legs and noses of animals, or on the feet and feathers of aquatic birds, as wild ducks, grebes, cranes, &c.

III. The Plants from Adelaide District, &c.

It may be contended, and with much force, that these species were introduced among seeds brought here by settlers, as vegetable seeds, flower seeds, wheat, oats, &c. In many cases this is almost a certainty, and may be taken as such in species like *Barbarea*, *Kennedya prostrata*, *Urtica incisa*, &c., but I do not think the above explanation can apply to *Callitris cupressiformis*, *Choretrum spicatum*, *Casuarina quadrivalvis*, *Pterostylis pedunculata*, *Xanthorrhœa quadrangulata*, *Lindsœa linearis*, *Arundo*, &c. Does not the presence of these plants point to the probability of a period when the Euronotian region ran well up the Flinders Range, when climatic conditions were different and better—perhaps in the early or middle tertiary periods?

In conclusion, I would again repeat that this paper consists of *Notes*, and must not be taken as more than the briefest statement of the points touched upon. I feel and know that much remains to be done in this locality, not only as regards its botany, but on other lines also; and I venture to express the hope that while tracts of untouched land remain—and that apparently will not be for many years longer—this Society will find workers willing to complete what is thus begun.

CONTENTS.

PAGE.

DENNANT, J. : Description of New Species of Corals from the Australian Tertiaries, Plate I. 1

JOHNCOCK, CHAS. F. : Notes on the Loranthaceæ of the Willochra Valley 7

MAIDEN, J. H. : On Eucalyptus Behriana, F. v. M. 10

BLACKBURN, REV. T. : Further Notes on Australian Coleoptera, with Descriptions of New Genera and Species 16

JOHNCOCK, CHAS. F. : Further Notes on the Botany of the Willochra Valley 31

TRANSACTIONS

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Revision of the Australian Hesperiadæ.

By Edward Meyrick, B.A., F.Z.S., and Oswald Lower, F.E.S., Lond., &c.

[Read June 3, 1902.]

HESPERIADÆ.

Eyes glabrous. Club of antennæ large, strong, basal joint with long hair tuft. Anterior legs fully developed; posterior tibiæ usually with middle spurs. Forewings with all veins separate. Hindwings with 5 generally absent.

A large family, generally distributed, but absent from New Zealand. Most abundant within the tropics.

Many arrangements have been proposed by different writers on this group, but we have adopted the system of numbering the veins, which for brevity and clearness appears to us ample for the study and recognition of the different genera. The position of vein 5 of the forewing in relation with 6 and 4 proves a valuable generic character. The shape of the club, and the absence or presence of the stigma of the male, are also useful guides, and although the latter varies much in shape and size it is remarkably constant in individual species. The pattern of the wings and general coloring of the upper side are very similar in coloration and appearance, especially so in the Indo-Malayan forms, and it is highly probable that some of our species will prove to be synonymic with Oriental forms, but long series and further study are required to give anything approaching finality to the subject. The best and most important markings for identification will be found on the under surface of the hindwings, and the shape of the hindwings has been characterised where of any value. The markings of the female are generally similar to the opposite sex, but more strongly developed. The descriptions of larvæ and pupæ are given where known, and it will be noticed that a large proportion of the species feed on species of *Cladium*, and are usually full fed in October and November. We have enumerated eighty species, all of which are distinct. We have fully a dozen others, but not in a fit condition for description. The reputed Australian species are enumerated at the end of the paper.

We estimate that over 100 species will be found to occur in Australia. The group resolves itself into fourteen genera, *Telesto*, Bd., and *Trapezites*, Hüb., being the most predominant and widely distributed. Perhaps it is as well to mention that the drawing up of the generic characters and identifications has been made by Mr. Meyrick. The descriptive and other work in connection with the paper has been performed by the junior author. The specific descriptions may appear unnecessarily lengthened, but the abortive works of many of the older authors, which for the purpose of study are useless, disposes of this objection. We may state that we shall at all times be pleased to identify any specimens entrusted to us, and wish to thank the many kind friends for assistance, especially Messrs. Illidge, Waterhouse, Turner, Tepper, and Lyell.

Those genera asterisked (*) are confined to the Australian region.

In conclusion perhaps it is well to mention *Euschemon Rafflesiæ*, Mac. This insect is undoubtedly *not* referable to the Hesperiadæ. It has a large and well developed frenulum, which is invariably absent in the *Hesperiadæ* and in all other Butterflies. Superficially it recalls the *Agaristidæ*. In neuration, however, it nearly approaches the *Hesperiadæ*. It stands by itself as a separate family, and must, we think, be regarded as related to the ancestral form of the *Hesperiadæ*, intermediate between them and the *Thyrididæ*.

Tabulation of Genera.

1.	Hindwings with five developed... ...	3	
	Hindwings with 5 obsolete	5	
2.	Palpi ascending, terminal joint long, slightly swollen near apex, porrected	4	
	Palpi sub-porrect, terminal joint moderate	8	*Exometœca.*
3.	Hindwings with 3 and 4 closely approximated	14	*Hasora.*
	Hindwings with 3 and 4 remote ...	13	*Badamia.*
4.	Forewings with 5 parallel to 4 and 6, slightly nearer 6 at base	6	
	Forewings with 5 rather approximated to 4	11	
5.	Posterior tibiæ without middle spurs...	7	
	Posterior with all spurs	8	
6.	Palpi ascending	7	*Phœnicops.*
	Palpi sub-porrect	5	*Mesodina.*

7.	Forewings in male with costal fold ...	3	*Netrocoryne*
	Forewings in male without fold ...	9	
8.	Forewings in male with stigma ...	6	*Telesto.*
	Forewings in male without stigma ...	10	
9.	Palpi porrected	4	*Tagiades.*
	Palpi obliquely ascending	7	*Trapezites.*
10.	Terminal joint of palpi short	11	
	Terminal joint of palpi rather long ...	9	*Apaustus.*
11.	Terminal joint of palpi porrected ...	12	*Notocrypta.*
	Terminal joint of palpi erect	13	
12.	Forewings with 3 in male approximated to 4	11	*Erynnis.*
	Forewings with 3 in male remote from 4	10	*Telicota.*
13.	Forewings in male with costal fold, posterior tibiæ with all spurs	3	
	Forewings in male with costal fold, posterior tibiæ without middle spurs	1	*Casyapa.*

1. Casyapa, Kirby.

Club of antennæ moderate, gradually thickened, tapering to a fine point, bent, not hooked. Hind tibiæ densely fringed, and with only terminal pair of spurs. Forewings in male with costal fold; vein 5 equidistant from 4 and 6; vein 3 from well before end of cell; vein 2 three times as far from base of wing as from end of cell. Hindwings with termen evenly rounded; vein 5 obsolete; 3 from just before end of cell.

Differs from *Phœnicops*, Watson, by the costal fold.

1. Casyapa critomedia, Guer.

(*Hesperia critomedia*, Guer. voy. *Coq.*, ii., t. 18, fig. 6, 1829; *Thymele odix*, Boisd., voy. *Astrolabe*, Lep. p. 160, n. 2, 1832; *Chœtocneme caristus*, Hew., Desc. Hesp., p. 21, n. 1, 1807.)

Male, 70 mm. Head, palpi, antennæ, thorax, and abdomen bright ochreous-fuscous, terminal joint of antennæ darker fuscous. Legs, dark fuscous. Forewings elongate-triangular, termen nearly straight; dark ochreous-fuscous; basal half of wing clothed with short ochreous-ferruginous hairs; a broad transverse orange-yellow fascia, from costa slightly beyond middle to near anal angle, but not quite reaching it, broadest on costa and continued as a moderate costal streak to base, attenuated towards anal angle; cilia dark fuscous. Hindwings with termen evenly rounded; color and basal hairs as in forewings; a faint ochreous line along posterior extremity of cell; a very broad orange-yellow

band along termen, becoming much narrowed towards vein 6 and not near reaching apex of wing; cilia dark fuscous, becoming orange-yellow on lower half of termen. Underside of both wings dark fuscous, markings of upper side reproduced in pale yellow, but band on hindwings not reaching beyond vein 6; a pale yellow dorsal streak on forewings.

Herberton and Cape York, Queensland; three specimens in January. Occurs also in New Guinea.

2. Phoenicops, Watson.

Club of antennæ elongate, pointed, bent. Palpi ascending, terminal joint very short, obtuse. Posterior tibiæ without middle spurs. Forewings in male without characters; 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings; 5 obsolete.

An endemic genus, comprising the three largest and handsomest species in the Australian group.

1. Forewings dark fuscous, transverse band yellow ... ... 3 *Porphyropis*
2. Forewings fuscous, transverse band whitish ... ... 1 *Beata.*
3. Forewings orange, transverse band broken into two, large whitish hyaline spots ... ... 2 *Denitza.*

2. Phœnicops beata, Hew.

(*Netrocoryne beata*, Hew. Desc. Hesp., p. 22, n. 1, 1867; Ex. Butt. V. Hesp., figs. 2, 3, 1874).

Male and female, 64-80 mm. Head, thorax, and abdomen ochreous-fuscous Palpi, antennæ, and legs ochreous, palpi strongly mixed with orange; eyes dull carmine. Forewings elongate-triangular, costa gently arched, termen bowed, oblique, somewhat sinuate beneath apex; bright ochreous in male, ochreous-fuscous in female; markings of forewings in male as in *denitza*, but only one subapical spot; female with a moderately broad oblique transparent whitish fascia, from beyond middle of costa to just above anal angle, not quite reaching costa, containing a small triangular spot of ground color above middle, edges of fascia irregular, lower third constricted, costal edge ochreous; a small whitish spot beyond termination of cell, sometimes absent; cilia ochreous-fuscous. Hindwings with termen rounded; color of respective sexes as in forewings, but mixed with orange in female; a small subtriangular spot of semi-transparent whitish in posterior extre-

mity of cell, beneath which is a quadrate orange patch; two roundish semi-transparent whitish spots between veins 2 and 4 near termen, generally absent; cilia as in forewings. Underside of wings dull ochreous brighter in male; markings of upper side reproduced.

The male is similar in appearance to *denitza*, but at once distinguished by the absence of purplish neural streaks. The female is quite a different looking insect, but is readily known by the broad transparent fascia of forewings.

The larvæ feed on *Tristania*, *Eugenia*, and the camphor laurel. They draw two leaves together, one over the other in canopy-like form, with silken threads, and remain quiescent during the day, only emerging at night. Specimens feeding on the camphor laurel, which were protected by mosquito netting bound round the twigs, lived through the winter, changing in September and emerging in October. A second brood will change in February or March and be on the wing a fortnight or three weeks later. It is most active at dusk (Illidge).

Cooktown, Mackay, and Brisbane, Queensland; four specimens in November and December.

3. Phoenicops denitza, Hew.

(*Netrocoryne denitza*, Hew. Desc. Hesp., p. 22, n. 2, 1867; Ex. Butt. V. Hesp., f. 4, 1874; *Staud*, Ex. Sch., t. 100, 1888.)

Male and female, 64-68 mm. Head, palpi, legs, and antennæ orange, club of antennæ blackish. Eyes carmine. Thorax and abdomen orange in male, purplish in female, female beneath orange. Forewings elongate, triangular, costa nearly straight, termen bowed, oblique; in male orange, in female iridescent bluish purple, with costa broadly suffused with orange in middle, apical and hind-marginal area dull orange; all veins in both sexes generally outlined with bluish purple; 2 large rounded semi-hyaline whitish spots, edged with purplish; first at extremity of cell, immediately followed by a small oblique streak of orange, more pronounced in female; second immediately below and beyond first, surmounted by an ovate, and below by a rounded similar spot, upper only separated by a vein; 3 smaller similar spots midway between cell and apex, placed obliquely outwards, median largest, lower smallest, dot-like in male, and sometimes nearly obsolete; cilia orange, mixed with fuscous in female. Hindwings with termen hardly prominent in middle; color as in forewings; all veins outlined with bluish purple; an ovoid orange spot

in middle of wing, edged above by a broad fuscous fascia, not continued to margin, edged by a similar fascia beneath, from the lower edge of which proceeds another fascia towards anal angle, but not reaching it; interneural spaces on termen broadly orange, duller in female; basal hairs of male yellowish, in female dull fuscous; cilia as in forewings. Underside of both wings with color as above, markings reproduced, but less distinct; base of wings in both sexes orange; fascia of hindwings more distinct.

A beautiful species, at once recognised by its brilliant coloring; its habits are similar to *beata*, *Hew.* The flowers of *Buddlea neemda* and the loquat (*Eriobotrya Japonica*) are a great attraction for this insect during March and April. The late Mr. G. Barnard, of Duaringa, bred this species for larvæ, feeding on *Tristania conferta*.

Brisbane, Rockhampton, and Duaringa, Queensland; Port Darwin; four specimens in November and December.

4. Phoenicops porphyropis, n. sp.

Male, 64 mm. Head, palpi, thorax, and abdomen dark fuscous, eyes blackish, post-orbital rims yellow abdomen beneath orange. Forewings with termen oblique, dark fuscous, suffused with iridescent purplish; a moderately broad transverse bright yellow band, edges irregularly dentate, from immediately beneath costa beyond middle to inner margin just above anal angle; cilia fuscous. Hindwings with termen rounded; color and cilia as in forewings; a bright yellow, rather narrow patch of yellow on termen just below apex.

Apparently somewhat allied to *Carysta* (*chœtocneme*) *callirenus*, Hew. (Desc. Hesp., p. 21, 1867; Exot., Butt. v. Hesp., fig. 1, 1874), but differs by the presence of markings on hindwings and different color of forewings.

Johnstone River, North Queensland; one specimen received from Mr. R. Illidge, taken in February.

3. Netrocoryne, Feld.

Club of antennæ elongate, pointed, bent. Palpi porrected, terminal joint rather short, obtuse. Posterior tibiæ with all spurs. Forewings in male with costal fold; 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings; 5 obsolete.

The genus is confined to the Australian region.

5. Netrocoryne repanda, Feld.

(Reise Nov. Lep. iii., p. 507, n. 882, t. 70, fig. 10, 1867; (?) *Goniloba vulpecula*, *Prittw.*, Stett. Ent. Zeit., p. 187; n. 41, t. 3, fig. 2a. b., 1868.)

Male and female, 44-52 mm. Head orange, palpi fuscous above, white beneath. Antennæ ochreous, club and base blackish. Legs ochreous-fuscous. Thorax and abdomen fuscous. Forewings triangular, costa nearly straight, termen sinuate above and below middle; light ochreous, more or less infuscated; markings in male dull whitish, in female whitish, semi-hyaline, margined with dark fuscous; a large, somewhat quadrate spot at posterior end of cell, in female surmounted by a patch of yellowish on costa; a second, similar, beneath and beyond, surmounted by a smaller quadrate spot which touches both first and second spots, and enclosing a triangular spot of fuscous; in male the 3 spots are separate, in female the second quadrate spot is followed beneath by 2 smaller spots, lowest very small; an oblique transverse series of 3 sub-costal spots at three-fourths from base, placed on darker ground color, lower smallest; cilia dark fuscous. Hindwings with termen somewhat angulated in middle; color as in forewings; a rounded semi-hyaline whitish spot before middle; a dark fuscous fascia from middle of costa, curved round and ending on middle of inner margin; in female more or less broken up into spots; basal hairs ochreous-fuscous; cilia as in forewings. Under side of both wings with color and markings as above.

Although showing some variety in depth of coloring the species is easily recognised by the shape of hindwings. We have quoted *Goniloba vulpecula*, Prittw., as a synonym, but the figure in Ent. Stett. Zeit., is wretched, although undoubtedly pertaining to this species. Larva full fed, 30 mm. Moderate rather narrow, cylindrical, smooth, tapering towards posterior segments. Head black, body slaty-grey, second segment yellowish, third segment orange, with a transverse series of four round black spots two on each side of dorsal line; fourth and fifth segments, with similar series of four black quadrate spots; tenth segment with two larger quadrate black spots, placed on either side; twelfth and thirteenth segments orange, with a large black dorsal spot on extremity of each, and a series of sub-spiracular small black spots, three on either side of dorsal spots; two small black spots on anterior portion of eleventh segment; lines nearly straight, hardly waved; dorsal moderate, whitish, centred with fuscous throughout; spiracular, orange, narrow; subra-spiracular broad, whitish, well defined; sub-spiracular whitish. Spiracles orange, fuscous centred.

The young larvæ, which is semi-transparent yellowish-fus-

cous in its very early stages, cuts out a circular piece of the leaf, and forms a canopy-like shelter, leaving a small aperture for ingress and egress. On approaching adult size this shelter is deserted and a new one formed by drawing the edges of the leaves together, gradually extending the domicile until of suitable dimensions; in this last position the larva pupates during September and the imago is on the wing from November.

The eggs are laid in April on the upper side of the leaf. They are somewhat elongate-hemispherical in shape, and deeply grooved.

Feeds on *Callicoma serratifolia* (*Cunoniaceæ*), *Elæocarpus reticulatus*, and *E. cyaneus* (*Tiliaceæ*).

Sydney and Como, New South Wales; Brisbane to Cooktown, Queensland; November to March, nine specimens.

4. Tagiades, Hüb.

Club of antennæ gradual, elongate, pointed bent. Palpi porrected, terminal joint short, obtuse. Posterior tibiæ with all spurs. Forewings in male without characters; 5 parallel to 4 and 6; slightly nearer 6 at base. Hindwings with 5 rudimentary.

An Indo-Malayan genus of considerable extent; represented in Australia by the single known species. The insects are mostly colored fuscous and white, the species under review being no exception to the rule.

6. Tagiades janetta, Butler.

Trans. Ent. Soc., Lond., p. 519 (1870); *T. gamelia*, *Misk.* Proc. Roy. Soc., Q'd., p. 146 (1889).

Male, 50 mm. Head, thorax, palpi, antennæ, and abdomen dark fuscous. Palpi beneath whitish. Legs fuscous, strongly mixed with whitish. Forewings elongate, triangular, costa rather strongly arched, termen hardly bowed, oblique; fuscous with silvery-white markings; 2 somewhat trapezoid spots just before end of cell, their apices more or less confluent; 2 moderate spots beyond and below extremity of cell, first irregularly diamond-shaped; second below and before, somewhat triangular; an irregular oblique series of 3 subcostal spots at three-fourths from base, median smallest, upper sometimes surmounted by an additional minute spot; 2 small spots placed obliquely beyond and beneath lowest spot; cilia fuscous. Hindwings with termen rounded; white, basal half, except along inner margin, light fuscous; a

dark fuscous patch at apex, continued along termen to one-third, becoming more or less confluent with basal patch on costa; 2 moderate quadrate dark fuscous spots immediately preceding apical patch, lower largest and more distinct; cilia white, an apical patch fuscous. Under side of forewings with color and markings as on upper side, but cellular spots strongly confluent and surmounted by an elongate silvery-white mark; a more or less defined whitish sub-terminal band, broadest and more pronounced on lower third. Hindwings beneath white; a dark fuscous streak, commencing indistinct and narrow at base, suddenly becoming very broad and continued round to termen at one-third, termination abrupt; quadrate spots as on upper side; a small fuscous streak on termen above anal angle; cilia as above.

Somewhat allied to *Japetus*, Cr.

Brisbane to Cape York, Queensland; four specimens, November and December.

5. Mesodina, Meyr.

Club of antennæ elongate, pointed, bent, sub-porrect, terminal joint very short. Posterior without middle spurs. Forewings in male without stigma; 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings; 5 obsolete. The two species may be recognised as follows:

1. Forewings with whitish markings ... 8 *Halyzia*.
2. Forewings with yellowish markings ... 7 *Aeluropis*.

7. Mesodina aeluropis, Meyr., M.S.S.

Male and female, 30-44 mm. Head, palpi, antennæ, thorax, legs and abdomen dark fuscous, thorax and palpi beneath whitish, antennæ annulated beneath with white, club reddish-carmine, beneath white, abdomen and legs mixed beneath with whitish, posterior legs more whitish. Forewings elongate-triangular, termen gently bowed, oblique; dark fuscous, with yellowish markings; basal third more or less clothed with short golden hairs; a large quadrate spot in posterior end of cell, posterior edge slightly sinuate in middle, anterior edge nearly straight; a roundish spot beyond lower extremity of first; a second, similar, twice as large immediately beyond, below, and a third sometimes absent in male, small, placed exactly below middle of second; an oblique transverse row of three sub-apical spots, lower largest; sometimes absent in male; cilia dark fuscous, becoming mixed with whitish in middle of termen and almost wholly whitish around anal angle.

Hindwings with termen rounded; apex hardly prominent; color as in forewings; a large patch of rather long golden-ochreous hairs extending from base to near two-thirds not near reaching costa or inner margin; cilia as in forewings, but more whitish. Under side of forewings with color as above, upper half of termen broadly blue-grey; whole of cell filled up with orange, 3 posterior spots of upper side reproduced and confluent with posterior edge of cell; lower of the 3 sub-apical spots of upper side reproduced; cilia fuscous-grey, with dark fuscous spots at extremities of veins. Hindwings grey-whitish, somewhat lilacine; an obscure ring of fuscous before middle; a row of 3 or 4 similar rings at two-thirds from base; cilia greyish-fuscous.

Larva full fed, 35 mm. Cylindrical, very pale greenish; head thickly covered with fine white erect hairs, body finely clothed with similar hairs, but in a lesser degree. The whole larva is covered with a fine white powder, causing it to appear wholly white. It apparently lives head downwards, as the opening of the sheaf which it constructs is below, and not above as is usual in this group; before pupating the larva closes the opening by spinning a silken pad across it. It pupates head downwards. Feeds on *Patersonia, sp.* (*Iridaceæ*), and imago emerges during October.

The imago bears some resemblance to some species of *Telesto*, the female being similar to *donnysa* on forewings above.

Mount Kembla and Katoomba, New South Wales; several specimens bred in February and March.

8. Mesodina halyzia, Hew.

(*Hesperilla halyzia, Hew.* Desc. Hesp., p. 38, n. 1, 1868; Ex. Butt. v. Hesp. and Cyclop., f. 7, 1874; female, *A. and S.*, Vict. Butt., p. 125, 1893).

Male and female, 28-34 mm. Head, thorax, palpi, and abdomen dark fuscous, palpi and thorax beneath white. Legs whitish. Antennæ fuscous, annulated with white, club reddish, internally white. Forewings elongate, triangular, costa somewhat sinuate in middle, termen oblique, not bowed; dark fuscous with metallic reflections; markings whitish; a large, somewhat quadrate spot in posterior end of cell, sinuate anteriorly and postriorly; a cartridge-shaped spot immediately beneath and beyond, beneath which is another large quadrate spot, only separated by intervening vein; an oblique transverse row of 3 sub-apical spots, absent in male; cilia fuscous, basal half darker. Hindwings with termen rounded; without

markings; color and cilia as in forewings. Under side of forewings with color and markings as above; a broad dull bluish-white costal streak, narrowly mixed with yellowish on basal half and becoming very broad on apical and area of termen, but only reaching to two thirds of termen; cilia as above, but lighter and somewhat chequered with fuscous. Hindwings dull whitish, with a lilacine bloom; a very ill-defined row of fuscous dots, from three-fourths of costa towards inner margin at three-fourths, but not reaching it; an elongate streak of golden-fuscous, from base direct to anal angle, edged anteriorly by a streak of dull purplish; cilia as above.

A sombre-looking species, not like any other in the group.

The larva, method of pupating, and food plant are as in *aeluropis*.

Como, Katoomba, and Sydney, New South Wales; Perth, Western Australia; from October to April, three specimens.

6. *Telesto, Boisd.

Club of antennæ elongate, pointed, more or less bent. Palpi obliquely ascending or sub-porrect, terminal joint short, subconical. Posterior tibiæ with all spurs. Forewings in male with stigma; 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings; 5 obsolete.

In the following tabulation the characters are drawn from the male insects, unless otherwise specified:

1. Under side of hindwings reddish, markings and veins outlined with whitish; no markings in cell	13	*Picta.*
Under side of hindwings creamy-white, markings black; cell with a large white centred elongate spot at extremity	2	
2. Hindwings above with orange transverse fascia unevenly waved, posterior extremity produced	10	*Ornata.*
Hindwings above with orange transverse fascia almost even throughout	1	
3. Forewings above with markings large, shining-golden; cilia strongly barred. Size, 36 mm.	9	*Peronata*, male.

Forewings above, with markings much reduced in size; cilia barred. Size, 25-29 mm.... 5

4. Hindwings beneath bright yellowish - orange; markings black, comprising 3 transverse series of spots ... 12 *Munionga*, female.

Hindwings beneath dull reddish - fuscous; markings creamy-white, comprising 2 transverse, irregular series of spots ... ... 11 *Mastersi*.

5. Hindwings beneath fuscous, with 10 silvery-white spots arranged in 3 transverse series ... ... 14 *Crypsargyra*.

Hindwings beneath reddish-fuscous, with one large cellular and 3 small sub-median white spots 6

6. Stigma erect, narrow black, interrupted, extending to below vein 1 ... ... 16 *Dirphia*.

Stigma black, thick, curved, edged broadly posteriorly with dull fuscous 7

7. Hindwings beneath bright ochreous, with transverse, twice sinuate, silvery-whitish sub-median fascia... 18 *Drachmophora*.

Hindwings beneath reddish-fuscous, markings fuscous, dot-like 8

8. Forewings with stigma, narrow, black, erect, reaching inner margin ... ... 21 *Donnysa*.

Forewings with stigma, ovoid, blotch-like, black, not near reaching inner margin ... 26 *Flammeata*.

9. Forewings above with two additional white spots, beyond subcostal series ... ... 22 *Chaostola*.

Forewings above without such spots 10

10. Forewings above with cellular spot curved upwards at extremity; hindwings with orange median patch above — 23 *Andersoni.*
    Forewings above with similar markings; hindwings without markings above ... — 29 *Doubledayi.*
11. Wings strongly suffused with purplish above; markings yellow ... ... — 26 *Flammeata,* female.
    Wings fuscous above, markings white ... ... — 12
12. Forewings above with 2 additional moderate white spots joining subcostal series; patch on hindwings dull white ... ... — 28 *Atralba.*
    Forewings similarly marked; patch of hindwings orange... — 10
13. Forewings above with cellular spot ovoid, golden-yellow, occupying one-third of cell — 24 *Dispar.*
    Forewings above with cellular spot very small, whitish, transverse ... ... — 14
14. Forewings with stigma dull whitish, entire, blackish edged, reaching inner margin, cellular spot narrow... — 31 *Ismene*
    Forewings with stigma similar; cellular spot absent ... — 18
15. Forewings with stigma black, very oblique, broadly-lanceolate, not reaching inner margin; cellular spot elongate whitish ... ... — 33 *Perronii.*
    Forewings with similar stigma, but less oblique; cellular spot absent ... ... — 38 *Crypsigramma.*
16. Hindwings above with transverse series of 4 whitish spots ... ... — 34 *Compacta,* male.
    Hindwings above without such spots ... ... — 34 *Compacta,* female.

17. Forewings above fuscous, with upper half of cellular spot, strongly excised and becoming 8-shaped ... ... 33 *Perronii*, female
Forewings above light fuscous; cellular spot narrow, hardly constricted above ... ... 31 *Ismene*, female.

18. Forewings above without markings, except whitish stigma ... ... 39 *Bathrophora*, male.
Forewings above with cellular spot absent ... ... 39 *Bathrophora*, female

19. Stigma narrow, erect, black, somewhat waved, not interrupted; patch of hindwings above bright orange ... 15 *Chrysotricha*.
Stigma similar, broken into 4 spots; patch of hindwings dull fuscous 6

20. Hindwings beneath reddish, spots placed as in *Dirphia*... 19
Hindwings beneath purplish, fuscous without markings or faintly indicated 21

21. Forewings with stigma, narrow, curved, white ... ... 30 *Leucostigma*.
Forewings with stigma, moderately broad, oblique, dull grey-whitish 14

22. Hindwings above with two whitish median spots; forewing with cellular spot quadrate ... ... 19 *Monticolæ*.
Hindwings above with two somewhat hyaline spots; forewing with cellular spot sickle-shaped ... .. 36 *Croceus*.

23. Under side of hindwings fleshy-ochreous, with curved series of rather large white fuscous-edged spots ... ... 20 *Cyclospila*.
Under side of hindwings reddish-ochreous, with 3 or 4 indistinct fuscous dots ... 25

24. Forewings with stigma, waved, narrow, entire, black; lower sub-apical spot sometimes absent ... ... 32 *Sexguttata.*
Forewings with stigma narrow, entire, reddish; sub-apical spots present 27
25. Forewings above with all markings absent, except ovoid black stigma ... ... 27 *Tymbophora.*
Forewings above with all markings present, stigma broken into 3 small spots... ... 16
26. Hindwings above with very large bright orange triangular patch in middle ... 25 *Idothea.*
Hindwings above with very narrow transverse orange median band 5
27. Hindwings above with three white spots; one in cell, two sub-median ... ... 35 *Senta.*
Hindwings above with one whitish spot in cell ... 6
28. Under side of hindwings yellowish without markings; cilia chequered ... ... 37 *Xanthomera.*
Under side of hindwings dull ochreous without markings; cilia fuscous... 33

This is the dominant genus in Australia, and likely to be much increased. (We have 3 species unnamed, which are probably new, but not in a fit condition for description.) The female specimens bear considerable resemblance to species of the genus *Trapezites*, *Hüb*; but the male are easily distinguished by the stigma, which, although showing considerable variation, is always present. This character separates it from *Trapezites*.

9. Telesto perornata, Kirby.

(*Hesperilla perornata*, *Kirby*. Ann. Mag. N.H., vi., p. 437, 1893; *A. and S.*, Vict. Butt., p. 121, 1893.)

Female, 36 mm. Head, thorax, palpi, antennæ, and abdomen dark fuscous, head and thorax mixed with golden-ochreous hairs, palpi beneath ochreous-whitish, thorax yellowish hairs

beneath, antennæ mixed with ochreous on basal half, abdomen with broad whitish segmental rings, anal tuft ochreous. Forewings elongate, triangular, costa gently arched at base, thence straight, termen oblique, gently bowed; golden-fuscous; markings shining golden-ochreous; basal hairs golden-ochreous; a large rounded orange spot in posterior end of cell, sometimes irregularly mixed with fuscous anteriorly; an elongate, quadrate spot above inner margin, slightly beyond one-third from base; an irregular triangular-shaped spot above inner margin before anal angle, sometimes constricted anteriorly; an oblique transverse row of 3 confluent sub-costal spots at three-fourths from base; a moderate quadrate spot above and slightly beyond second inner marginal spot; a narrower and slightly more elongate spot immediately above quadrate spot, only separated obscurely by dividing vein; cilia whitish ochreous, chequered with blackish. Hindwings with termen irregularly rounded; color as forewings, but somewhat darker; a broad curved median orange band, anterior edge encircling cell, posterior edge more or less obscurely crenulate; cilia as in forewings. Under side of forewings dull fuscous, all markings of upper side reproduced; a transverse row of 4 confluent spots along upper half of termen to apex, posteriorly emarginate; cilia as above. Hindwings beneath yellow-whitish; markings black; a spot at base; an elongate spot on costa in middle; a second, smaller, immediately below; a third, cartridge-shaped, very large and occupying whole of cell, except an elongate median streak of ground color; a fourth, moderate, immediately below; an irregular spot just before apex, followed at its anterior and posterior extremities by a row of 5 spots, those along termen being the smaller; inner margin broadly fuscous; cilia as in forewings.

Closely allied to the following; best distinguished by its comparatively large size, narrower band of upper side of hindwings, and special markings of under side of forewings.

The larvæ feed on *Cladium*, and are pale yellowish-green, markings hardly traceable. The pupæ are blackish and have two blunt projections on forehead.,

Sydney, New South Wales; Victoria; four specimens in March.

10. Telesto ornata, Leach.

(*Hesperilla ornata*, *Leach*, Zool. Misc. I., p. 126, t. 55, figs. 4, 5, 1815; *Math.* Trans. Ent. Soc., p. 185, t. 6, figs. 9, 9a, 1888; *A. and S.* Vict. Butt., p. 120, 1893.)

Male and female, 28-34 mm. Head and palpi blackish, spotted

with ochreous, palpi ochreous beneath, collar orange. Thorax and abdomen dark fuscous, thorax clothed with ochreous hairs, and clothed with white beneath, abdomen with whitish-ochreous segmental rings, anal tuft black, mixed with white. Antennæ black, sharply annulated with white beneath, club whitish beneath. Legs whitish-ochreous, tibiæ and tarsi blackish. Forewings elongate, triangular, costa nearly straight, termen nearly straight, oblique in male, rounded in female; dark golden-fuscous, somewhat shining; basal hairs yellowish; markings golden-ochreous; a large quadrate spot in posterior end of cell, somewhat sinuate in male anteriorly; stigma black, erect, narrow, sometimes broken into two spots, from above inner margin at two-thirds to lower extremity of termination of cell, where it is broadest; a moderate cartridge-shaped spot immediately beyond end of cell, in male much smaller; a quadrate spot immediately below, in male very small, only separated from preceding spot by intervening vein; an oblique transverse row of 3 elongate sub-costal spots at two-thirds from base, upper smallest; cilia yellowish, barred with fuscous. Hindwings with hind-margin somewhat prominent toward anal angle; dark fuscous, darker than forewings; basal hairs yellowish; a moderately broad transverse orange median band, upper extremity encircling termination of cell and continued as a quadrate spot towards inner margin, posterior edge somewhat crenulate, becoming elongate on outer edge, but not near reaching termen; cilia as in forewings. Under side of forewings dark fuscous, spots of upper side reproduced, but less distinct, cellular spot surmounted by an elongate cuneiform whitish spot, somewhat suffused; a moderately broad transverse whitish band, from just before apex and slightly curved round to near upper extremity of spot following stigma, broadest beneath, emitting from its anterior edge of upper-half whitish streaks to the 3 sub-costal spots and enclosing 3 ovoid spots of ground color, and enclosing on edge of termen 4 nearly similar spots of ground color, upper largest, third obscure; a dull, in female bright, somewhat quadrate whitish spot on vein 1 at two-thirds from base; cilia as above, but more distinctly barred. Hindwings pale whitish-ochreous, markings black; a round spot on costa at base; an elongate spot on costa before middle; a similar smaller sub-costal spot beyond middle; a large pyriform spot in cell, centred with ground color; a rounded spot beneath first elongate spot, a second below second sub-costal spot, and a third at apex; a row of 5 spots along termen, quadrate, upper smallest, followed above by a row of 4 parallel more elongate spots, sometimes median

pair and more or less confluent with those on termen; a large cuneiform spot at base, below cell; inner margin broadly fuscous; cilia as in forewings, somewhat reddish tinged at base of black bars.

Closely allied to the preceding, but immediately distinguished from that species by the narrower and different shape of orange band of hindwings and smaller markings. The male is subject to slight variation in the development of the post-stigmal dot, which in some specimens is very suffused.

Larva full fed, 30 mm. Moderate, cylindrical, somewhat wrinkled, with hardly perceptible short whitish hairs, those on posterior segments being longer. Head pale ochreous-fuscous, with a fine reddish median stripe, becoming V-shaped on forehead, and a fuscous-reddish spot on either side of mouth. Body yellowish-fuscous, markings fuscous, faintly indicated; dorsal well developed, sub-dorsal and lateral similar, but more conspicuous on segments 9-13; spiracular and sub-spiracular hardly traceable; supra-spiracular ochreous whitish; full fed in October; imago emerges during October and November. Feeds on *Cladium asperum*. The pupæ are fuscous, and are furnished with two long hornlike projections on anterior segment. The pupal stage is of very short duration.

Sydney, Newcastle, and Bathurst, New South Wales; Jindwick, Leongatha, and Wandin, Victoria; Cooktown and Mackay, Queensland; October to January, five specimens.

11. Telesto mastersi, Waterh.

(*Hesperilla Mastersi, Waterhouse.* Proc. Linn. Soc., N.S.W., p. 54, 1900, pl. 1, figs. 5-8.)

Male and female, 40-46 mm. Head fuscous. Palpi yellowish-white. Antennæ and legs fuscous, antennæ annulated beneath with whitish, club reddish beneath. Thorax and abdomen above blackish, with yellowish segmental rings. Forewings elongate, triangular, costa almost straight, termen oblique; dark golden fuscous; basal hairs orange yellow; markings ochreous-yellow, hyaline; a large quadrate spot in posterior end of cell, in female indented anteriorly and posteriorly; a second, moderate, beyond extremity of cell; in female there are 2 similar spots immediately below the second, the upper large, quadrate, the lower somewhat elongate; an oblique transverse series of 3 small sub-costal spots at two-thirds from base; a small spot in female at one-third from base; stigma black, moderate, entire from beyond middle of inner margin to beyond lower termination of cell; cilia fus-

cous, chequered with ochreous-white. Hindwings with termen rounded in female, anal angle in male somewhat prominent; color as in forewings, but somewhat darker; basal hairs yellow; a large, broad orange-yellow transverse median patch, somewhat narrowed in male, not near reaching costa or inner margin, upper edge irregular, posterior hardly straight; cilia as in forewings. Under side of forewings dark fuscous, lighter towards apical third; markings of upper side, except stigma, reproduced; costa yellowish-white, spotted with fuscous on posterior half; inner margin yellowish-white, broadest in middle; cilia as above, but more pronounced. Hindwings reddish-fuscous; markings ochreous-white; basal third of costa ochreous-white; a moderately broad band from costa near apex to middle of inner margin, separated into four spots, first and second confluent extending to middle of disc, third and fourth elongate, fourth on inner margin; a black spot in band near costa; a parallel band of about 3 or 4 roundish spots from inner margin above anal angle to below apex; cilia as in forewings.

Allied to *Ornata*, but the lesser number of spots of forewings, and especially by the arrangement of the markings of under side of hindwings, this species is at once recognised; it is the finest yet described.

Clifton and Mount Kembla, Illawarra, New South Wales; taken by Mr. A. G. Hamilton and G. A. Waterhouse, in January.

12. Telesto munionga, Oll.

(*Hesperilla munionga, Olliff.* Proc. Linn. Soc., New South Wales. Ser. 2, iv., p. 623, 1889.)

Female, 29-35 mm. Head, thorax, and abdomen dark fuscous, segmental margins of abdomen yellowish, more distinct beneath. Antennæ and palpi blackish, antennæ annulated with yellow beneath, palpi whitish beneath. Legs ochreous. Forewings elongate, triangular, costa nearly straight, faintly sinuate in middle; dark fuscous-golden; basal hairs yellowish, not very dense; markings orange; a large somewhat cuneiform spot in posterior end of cell, narrowed beneath; a second, cartridge-shaped, beyond termination of cell, lying between veins 2 and 3; a third, quadrate, immediately below, only separated by intervening vein; a small spot above inner margin at two-thirds from base; a transverse series of 3 elongate sub-costal spots at two-thirds from base; cilia dark fuscous, broadly chequered with orange. Hindwings with termen rounded; color as in forewings; a rather short, narrow, orange median band at end

of cell, not near reaching margins; cilia as in forewings. Underside: Forewings dark fuscous; markings of upper side suffusedly reproduced; anterior half of cell blackish; a moderately thick yellow costal streak from base to apex, at apex becoming blotch-like and extending to above middle of termen, within the blotch are 3 elongate blackish spots just beyond the 3 yellow sub-costal spots, and a series of 4 round blackish spots along termen; cilia as above. Hindwings yellow with blackish markings; 2 roundish spots at base; 3 transverse series of elongate spots, first before, starting from a very elongate spot on costa, to before middle of inner margin; second from beyond middle of costa to beyond middle of inner margin; third along termen, the latter series being roundish; cilia as in forewings.

The bright orange yellow markings of under side of hindwings in contradistinction to the other similarly marked species makes this species easy of recognition.

Mount Kosciusko, New South Wales; one specimen.

13. Telesto picta, Leach.

(*Hesperilla picta, Leach.* Zool. Misc. I., p. 126, t. 55, f. 4, 5, 1815; *Math.* Trans. Ent. Soc., Lond., p. 187, 1888; *A. and S.*, Vict. Butt., p. 121, 1893.)

Male and female, 32-38 mm. Head, palpi, thorax, antennæ, and abdomen dark fuscous, palpi strongly mixed with whitish beneath, thorax and abdomen clothed with short, fine yellowish hairs, abdominal segments more or less outlined with yellow, antennæ annulated with whitish beneath. Legs ochreous, mixed with fuscous and whitish. Forewings elongate, triangular, termen gently bowed, oblique; dark golden-fuscous, basal hairs yellowish; markings golden-ochreous; a large somewhat rounded spot in posterior end of cell, anterior edge with a slight projection in middle, posterior edge faintly indented in middle; stigma erect, waved, entire, narrow, from vein 1 above inner margin at two-thirds to beyond lower extremity of cell; a somewhat quadrate spot touching apex of stigma; another spot, larger, just below, only separated by dividing vein; a moderate suffused spot above inner margin at two-thirds from base, most distinct on under side; a similar spot at one-third from base; an oblique transverse series of 3 small sub-costal spots at two-thirds from base; cilia dark fuscous. Hindwings with termen rounded, anal angle somewhat prominent in male; dark fuscous; basal hairs ochreous-fuscous; extending to median band and along inner margin;

a narrow median orange transverse band, constricted posteriorly and not reaching inner margin, upper edge encircling posterior extremity of cell; cilia orange, chequered with black. Under side of forewings dark reddish-fuscous, markings of upper side, except stigma, reproduced; a series of 4 or 5 white lunate spots along apical third of termen; a very fine interrupted whitish line along termen; cilia as above. Under side of hindwings reddish-fuscous; all veins outlined with whitish ochreous; a whitish-ochreous moderately thick transverse band from just before apex to above middle of inner margin, hardly reaching inner margin; a fine crenulate parallel sub-terminal whitish line, from apex to vein 1, becoming blotch-like at extremity; a fine whitish line along termen; cilia as above.

Easily recognised from its allies by the markings of under side of hindwings and outlining of veins.

Mr. G. F. Matthew found the larvæ feeding upon *Cladium mariscus*, and states they are of the usual skipper shape, pale transparent olive in color, having the head sienna red, with a V-shaped mark on face. Mr. Waterhouse states that he has bred it from larvæ feeding on *C. asperum*, and that the larvæ and pupæ are almost identical in appearance with *Ornata*.

Sydney and Bathurst, New South Wales; Croajingalong, Victoria; from January to April.

14. Telesto crypsargyra, Meyr.

(Proc. Linn. Soc., N.S.W., ser. ii., p. 829, 1887.)

Male and female, 25-29 mm. Head black, spotted with pale yellow. Palpi pale yellow, apex black. Antennæ black, beneath spotted with pale yellow. Thorax fuscous, clothed with yellow hairs. Abdomen black, segmental margins pale yellow. Forewings elongate, triangular, costa nearly straight, termen rounded, slightly oblique; dark fuscous; basal hairs yellowish; spots light ochreous-yellowish, somewhat hyaline; first moderate, irregular, in middle of disc; 3 very small, sub-confluent, in an oblique transverse row beneath costa at three-fourths; one small sub-quadrate, between veins 3 and 4 at base, beneath which in male is a minute dot; in female a rather larger adjacent similar spot; stigma erect, black, from disc beyond middle to two-thirds of inner margin; in female a small yellow spot near inner margin before middle, and a larger one at two-thirds; cilia fuscous, terminal half sometimes obscurely spotted with pale yellow. Hindwings with termen rounded; blackish-fuscous; a mode-

rate transverse fascia like band in middle of disc, narrowed and less defined beneath, not nearly reaching margins; cilia blackish, more or less chequered with yellow. Under side of forewings dark fuscous; markings of upper side, except stigma reproduced; a yellowish suffusion beneath costa on basal half; a small yellow spot on costa at four-fifths; a yellow bar before termen, from costa to vein 4; an interrupted line along termen. Hindwings beneath fuscous-ferruginous; veins partly outlined with yellowish; an oblique pale yellowish blotch from costa near base; ten snow-white spots, arranged as follows: First small, beneath middle of costa; second longitudinal-linear, in disc before middle; third cuneiform, irregular, beneath disc, before middle; fourth moderately large, trapezoidal, in middle of disc; fifth sub-oval, beneath costa before apex; remaining five rather small, forming a sub-marginal series, 2 upper smallest and sometimes confluent.

Very distinct and handsome; easily known by the spots of under side of hindwings.

The larva when full fed is similar in markings and appearance to *Picta* and *Ornata*, but smaller and somewhat blue-green in appearance and deeper in tone than either of the above species. It feeds on a specis of *Cladium*, and is full fed in November. The pupa is similar to *Ornata*, and is furnished with appendages as in that species.

Blackheath and Katoomba, New South Wales, from November to February.

15. Telesto chrysotricha, n. sp.

Male, 40 mm. Head, palpi, thorax, antennæ, legs and abdomen ochreous-fuscous, palpi beneath ochreous-whitish, head, thorax, and abdomen clothed with yellowish hairs. Forewings elongate, triangular, termen nearly straight, oblique; dark fuscous, with yellowish markings; basal hairs orange; a large quadrate spot in posterior extremity of cell, indented anteriorly and posteriorly; a cartridge-shaped spot at base of veins 3 and 4, a smaller one immediately below, and an oblique transverse series of three sub-apical spots; stigma black, waved, moderate, erect, from above inner margin beyond middle to base of veins 3 and 4; cilia fuscous, darker at base. Hindwings with termen rounded, color as in forewings; basal and inner marginal hairs orange; a large median patch of orange scales, somewhat divided by intervening veins; cilia yellowish.

Under side of forewings reddish-ochreous; markings of upper side reproduced; basal two-thirds of cell orange, dorsal area

pale yellow on posterior half more or less edged above by its own width of pale yellow; spot between veins 2 and 3 much enlarged, and pale yellow. Hindwings reddish; markings silvery-white, edged with fuscous; a round spot in posterior extremity of cell; a similar spot at two-thirds from base, between veins 6 and 7, and two similar between veins 2 and 4; dorsal area pale yellowish; cilia as above.

Allied to *Dirphia*, Hew., but separable by the different coloring of hindwings above and below, in other respects similar.

Northampton and Albany, Western Australia; two specimens in November.

? 16. Telesto Dirphia, Hew.

(*Hesperilla dirphia*, *Hew.* Desc. Hesp., p. 38, n. 2, 1868; male, *H. trimaculata*, *Tepp.* Trans. Roy. Soc., S.A., iv., p. 32, t. 2, fig. 4, 1881; female, *H. quadrimaculata*, *ib. l.c.*, fig. 2.)

Male and female, 35-47 mm. Head, palpi, thorax, antennæ, and abdomen dark golden-fuscous, palpi yellowish beneath, thorax clothed with long yellowish hairs, antennæ annulated with whitish, club reddish-fuscous, internally whitish. Legs fuscous. Forewings elongate, triangular, costa nearly straight, faintly sinuate in middle, termen hardly round, oblique; dark golden-fuscous, with whitish-ochreous markings; a large, somewhat quadrate spot in posterior end of cell, edges sinuate; a quadrate spot beyond end of cell, near base of veins 3 and 4; in female a similar spot immediately below; a moderate quadrate spot lying on vein 1 and three-fourths from base, absent in male; an oblique transverse row of 3 quadrate subcostal spots at two-thirds from base; stigma black, narrow, erect, somewhat broken into 5 spots, from above inner margin beyond middle to beyond posterior extremity of cell; cilia dark fuscous. Hindwings with termen rounded, color as in forewings; basal half of wing clothed with long dull yellowish hairs; a round yellow spot in cell near posterior extremity; cilia ochreous-fuscous. Underside of forewings ochreous-fuscous, median third of wing dark fuscous, markings of upper side reproduced, except stigma and upper and lower of sub-costal spots; in the male are 2 extra spots placed as in male; cilia as above. Under side of hindwings reddish-ochreous; markings snow-white, edged with blackish; a large roundish spot in end of cell; a second in disc at two-thirds and 2 others, much smaller, contiguous to, and below second; cilia ochreous-fuscous, around inner margin fleshy.

Readily known by the white spots of under side of forewings; in some female specimens the cellular spot of upper side of hindwings is absent.

Blackwood, Belair, and Port Victor, South Australia; Grampians, Victoria; Perth, Western Australian (*S. Angel*); Katoomba and Sydney, New South Wales; in October and November. Mr. Miskin records it from Cape York, Queensland, so that it would appear to have a very wide range.

Larva full fed, 44 mm. Moderately stout, cylindrical, nearly smooth, clothed with short, hardly perceptible whitish hairs, those on anal segment being more dense, longer, and fuscous tinged. Head rugose, black; body yellowish-green, three anal segments mixed with fleshy-pink, dorsal line well developed, moderate, greenish, becoming obscured anteriorly; spiracular, sub-spiracular, and supra-spiracular hardly traceable, spiracles small, fuscous. Full fed in October; feeds on *Lepidospermum concavum*. The pupa is cylindrical, with two large, short, somewhat rose-shaped projections on anterior segment. Imago emerges from early in October to December.

17. Telesto dominula, Plotz.

(*Telesto dominula*, *Plotz*, Stett. Ent. Zeit. xlv., p. 379, 1884.)

"16 mm (measurement of one wing only). Hindwings above unspotted. The typical spots are white. In male forewings only with the apical dots; a narrow transverse spot in the cell, and a small spot in cell 3; a strong black and grey stigma runs from vein 1 to the angle of cell 3, almost transverse and bent towards termen. Hindwings beneath fuscous; a dirty white pear-shaped spot stands in the cell towards base, behind the middle runs a similar-colored waved band, cut by the dark veins, from cell 1c to cell 6; in cell 7 stands a separate spot, and one towards termen in cell 5. In cell 1c the band sends a light streak to base, dilated towards the extremity." The above is translated from Plotz's original description, and would indicate a species very similar to *Drachmophora*, Meyr., in appearance.

"Tasmania."

18. Telesto drachmophora, Meyr.

(Ent. Mo. Mag., p. 82, 1885.)

Male and female, 27-30 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, palpi whitish-yellow beneath, thorax clothed above with greenish-yellow hairs, beneath whitish, abdominal segments whitish beneath. Legs fuscous.

Forewings elongate, triangular, costa straight, termen rounded, oblique; dark golden-fuscous; markings ochreous-white; a small elongate spot in posterior end of cell; a second, roundish, between veins 3 and 4, near base; a third, larger, just below and beyond, absent in male; a fourth, resting on vein 1 at two-thirds from base; an oblique transverse series of 3 sub-costal quadrate spots at three-fourths from base; stigma short, obliquely curved, from inner margin above vein 1 to beyond posterior extremity of cell, edged posteriorly by 3 very dull ochreous-fuscous spots; cilia fuscous, barred with dull ochreous. Hindwings with termen rounded; color as in forewings; basal half of wings clothed with long ochreous hairs, becoming orange along upper margin of cell; cilia as in forewings. Underside of forewings dark fuscous, costa throughout, broadly orange; markings except stigma and accompanying spots as on upper side; 3 or 4 suffused whitish spots along upper half of termen; cilia as above, but more pronounced. Underside of hindwings golden fulvous, becoming darker on margins; an irregular silvery-white spot at about one-third from base; a second, elongate, lying on vein 1 near base; a moderately broad irregularly edged, waved transverse silvery-white fascia, from just beneath costa beyond middle to vein 1 above anal angle, strongly sinuate on vein 6, brightest and broadest between veins 2 and 4; a row of suffused whitish spots above termen; inner margin yellowish; cilia as in forewings.

A very beautiful species on the under side; easily known by the curious form of the stigma and transverse fascia of under side of hindwings.

Somewhat similar in appearance beneath to *Dominula*, Plotz.

Deloraine, Tasmania; Moonbar, New South Wales; in March (and probably February).

19. Telesto monticolæ, Oll.

(*Hesperilla monticolæ, Oll.* Proc. Linn. Soc., New South Wales, iv., p. 624, 1889).

Male, 24-25 mm. Head, thorax, palpi, and abdomen dark fuscous, palpi whitish beneath. Antennæ fuscous, spotted with whitish beneath. Forewings elongate, triangular, termen gently bowed, oblique; dark fuscous; three white spots; first sub-costal near apex, divided into three parts by veins; second in cell at posterior extremity; somewhat quadrate; third large just beyond and below lower angle of cell; a fourth spot just below third; stigma, black, moderately erect, slightly

waved, from above inner margin beyond middle to base of lower angle of cell; cilia ochreous-white, barred with fuscous-ochreous. Hindwings with termen rounded; color as in forewings; a white median spot, divided into two parts by bisecting vein; cilia as in forewings. Under side of both wings greyish-fuscous, somewhat ochreous tinged, forewings with ochreous basal hairs; markings as above; a whitish streak along upper half of termen. Hindwings with broad longitudinal bars of whitish, one in middle extending from base to termen, very conspicuous, and interrupted before extremity of cell where there is a fuscous spot, and again at about midway between cell and termen; an indistinct white bar near costa; a third near inner margin, both interrupted by a suffused fuscous spot at about two-thirds from base.

Somewhat like *Trapezites gracilis*, Tep., but the stigma forms a definite character.

Type in Australian Museum, Sydney; taken at Moonbar, New South Wales; two specimens in March.

20. Telesto cyclospila, n. sp.

Male and female, 33-38 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, thorax clothed with golden-ochreous hairs, antennæ spotted with white beneath, club reddish above, palpi beneath whitish. Forewings elongate, triangular, costa faintly sinuate in middle, termen gently bowed; golden-ochreous, somewhat shining, basal third clothed with short yellowish hairs; markings golden, except sub-costal spots which are whitish; a large quadrate spot in posterior end of cell, indented above middle on anterior and posterior edges; stigma black, erect, slightly waved, but not broken into spots, gently curved inwards above inner margin, from two-thirds inner margin to base of veins 3 and 4; a moderate cartridge-shaped spot touching upper extremity of stigma; a similar smaller spot just below; an oblique transverse series of three whitish sub-costal spots at three-fourths from base; cilia dull whitish, basal half fuscous. Hindwings with termen rounded; basal hairs orange, extending to middle; an elongate-quadrate orange patch below cell in middle of wing; some orange scales below; cilia as in forewings. Underside of forewings dull fleshy-ochreous; wing below cell fuscous, except above anal angle, which is pale yellowish; markings of upper side, except stigma, reproduced; sub-costal spots edged posteriorly with dark fuscous; upper margin of cell orange; an oblique series of 3 spots below post-cellular cartridge-shaped

spot, first moderate, quadrate, somewhat projecting anteriorly; second smaller, about half size of first; third elongate and reaching termen, rounded anteriorly; cilia as above. Hindwings fleshy-ochreous, markings white, edged with fuscous; a round spot at end of cell; a curved series of 7 spots; first elongate, below costa at just before two-thirds; second, largest, immediately below and beyond; third and fourth small; fifth and sixth moderate; seventh small, last 5 parallel to termen; inner marginal area broadly pale yellowish; cilia as above.

Allied to *Donnysa*, Hew., but separated by the fewer number of spots of upper side, and especially by the totally different color and markings of under side of hindwings, which in that species is lilacine and the spots are very small and differently placed.

Port Lincoln, South Australia; Melbourne, Victoria; two specimens in November.

21. Telesto donnysa, Hew.

(*Hesperilla donnysa*, *Hew.* Male. Desc. Hesp., p. 39, n. 3, 1868; Butt. v. Hesp. and Cyclop, fig. 7, 1874; *A. and S.*, Vict. Butt., p. 102, 1893.)

Male and female, 33-40 mm. Head, palpi, antennæ, thorax, and abdomen dark golden-fuscous, palpi and thorax whitish beneath, thorax and abdomen clothed with yellowish hairs above, antennæ spotted with white beneath. Legs reddish-fuscous. Forewings elongate, triangular, costa almost straight, termen hardly rounded, oblique; dark golden-fuscous markings yellowish; a moderately large elongate-quadrate spot in posterior end of cell, anterior and posterior edges sinuate; a second, somewhat rounded, between veins 3 and 4 near base; a third, larger, just below second; a somewhat ovate spot above inner margin at two-thirds from base, absent in male, or faintly traceable; an oblique transverse series of 3 sub-costal spots at three-fourths from base; stigma, black, narrow, oblique, somewhat broken into spots from immediately above inner margin to base of vein 4; cilia golden-fuscous. Hindwings with termen rounded; color as in forewings; basal and inner marginal hairs long, orange; a moderate dull orange band in middle of wing, divided into 3 spots by intervening veins, upper spot quadrate, well developed, lower two obscure; cilia ochreous, with fuscous spots at extremities of veins. Under side of forewings dull fuscous, median third dark fuscous; inner margin light ochreous; markings of upper side, except stigma, reproduced; a suffused yellowish spot resting on vein 1 at two-

thirds from base; cilia as above. Hindwings beneath pale fleshy lilac, with 7 fuscous spots; sometimes centred with whitish; first in cell near posterior extremity; second considerably beneath costa, at two-thirds from base; the remaining 5 in a transverse row at two-thirds from base, and almost parallel to termen; inner margin broadly dull ochreous, gradually attenuated from base; cilia as in forewings.

This species, although subject to slight variation in the development of the spots of under side of forewings, may be recognised by the narrow sexual band and small orange patch on hindwings.

The larvæ, which feed on species of *Cladium*, are when full fed about 35 mm. in length, head oblong and large, greenish-brown with a conspicuous V-shaped mark, apex pointing towards the body; there are also brownish markings on the sides; the body is cylindrical, tapering slightly towards anal extremity, uniform dull green, slightly wrinkled and paler at each segment; a dark green dorsal line; anal flap punctuated with minute bristles. The chrysalis is moderately long, with rugose projection on anterior segment. Found between united leaves or stems, the larva first spinning a circular silken pad about an inch above, which prevents the leaves contracting and enclosing the insects; the larvæ are full fed in November, the pupal state lasting about a fortnight.

Ringwood, Victoria; Scottsdale and Deloraine, Tasmania; Katoomba and Sydney, New South Wales; Blackwood and Port Lincoln, South Australia; from November to January.

22. Telesto chaostola, Meyr.

(Trans. Linn. Soc., New South Wales, ii., p. 830, 1887.)

Male, 34 mm. Head, palpi, thorax and abdomen fuscous grey, palpi becoming whitish beneath, hairs of abdomen yellowish tinged. Antennæ black, annulated with white. Forewings elongate-triangular, costa nearly straight, termen rounded, somewhat oblique; dark ochreous-fuscous; basal hairs yellowish; a slender ochreous-whitish line immediately beneath costal edge on basal half (sometimes absent); spots light ochreous yellowish, thinly scaled; one in middle of disc, moderately large, sub-quadrate; a second, smaller and sub-oval, near beyond this in middle; 3 very small, adjacent, arranged in a transverse series beneath costa at three-fourths; 2 other similar spots obliquely beneath and beyond these; a black stigma from beyond first discal dot to three-fifths of inner margin; cilia grey-whitish, barred with fuscous, basal third

fuscous. Hindwings with termen rounded; dark fuscous; basal hairs yellowish; a longitudinal oblong ochreous-yellow blotch in middle of disc, surmounted by 3 or 4 cloudy yellowish spots touching it; cilia whitish, basal third dark fuscous.

Underside: Forewings dark fuscous, paler along inner margin, spots of upper side reproduced, but lighter in color; a triangular orange blotch extending beneath costa from near base to first spot; three additional yellowish spots beneath second discal spots, forming with it a transverse series; a cloudy grey-whitish patch along upper half of termen, narrowed at extremities and edged with dull purplish. Hindwings purplish fuscous, irregularly sprinkled with grey-whitish, dorsal half more grey-whitish, excepting near termen; a twice dentate dark purplish mark towards inner margin before middle; 8 indistinct moderate spots outlined with dark fuscous, one before and above middle, one smaller in middle, remaining 6 forming a series (lower 3 adjacent) parallel to termen at two-thirds; a series of obscure fuscous dots beyond.

Female, 36 mm. Color and markings as in male excepting stigma, the single post-cellular spot is somewhat more flattened than in male, and immediately below it are 2 rather larger spots, first sub-quadrate, second irregular cuneiform.

Allied to the preceding species, but very distinct by the larger number of spots on forewings, besides other differences.

Blackheath, New South Wales; one male specimen taken by Mr. G. H. Raynor in November; Huonville, Tasmania; one female specimen taken by Mr. J. R. Norman in December.

23. Telesto andersoni, Kirby.

(Ann. Mag., N.H., vi., p. 434, 1893; *A. and S.*, Vict. Butt., p. 118, 1893.)

Male and female, 28-30 mm. Head, palpi, thorax, antennæ, and abdomen dark ochreous-fuscous, palpi beneath ochreous-whitish, antennæ annulated with whitish beneath, club reddish. Legs ochreous-fuscous. Forewings elongate-triangular, costa nearly straight, slightly arched near base, especially female, termen oblique, gently rounded; dark golden-fuscous, with yellowish markings; basal hairs orange; a large elongate spot in cell, occupying posterior half, strongly sinuate above; two somewhat quadrate spots beyond end of cell, upper largest; an erect, moderate black stigma, from immediately before last mentioned spots to inner margin at two-thirds; an oblique series of 3 sub-apical spots beyond three-fourths of costa; cilia dark fuscous, with a blackish hind-marginal line.

Hindwings with termen rounded; color as in forewings; basal and inner marginal hairs orange; an elongate median patch of yellowish scales, reaching from base to beyond two-thirds of wing, brightest on upper edge; cilia orange yellow.

Underside of wings purplish-fuscous, markings of forewings reproduced, excepting stigma; basal two-thirds of cell filled with orange; markings more or less edged with dark fuscous; cilia as above. Hindwings with two obscure parallel series of transverse fuscous dots in middle, not reaching either margin; cilia dull ochreous, with a few blackish spots at base.

Female, 30-32 mm. Color as in male, but markings of forewings golden-yellow, post cellular pair larger, spot in cell less elongate, patch of yellow on hindwings more pronounced.

This species could at first sight be easily confused with *Chaostola*, Meyr., but the absence of the two extra spots beyond the post-cellular pair is a definite and reliable distinction, besides which *Chaostola* has only one post-cellular spot in the male, but three large ones in the female.

Dandenong Ranges and Poowong, Victoria; in December and January.

24. Telesto dispar, Kirby.

(Ann. Mag., N.H., vi., p. 436, 1893; *Trapezites dispar*, *A. and S.*, Vict. Butt., p. 117, 1893.)

Male, 40 mm. Head, thorax, and abdomen golden-ochreous, more or less clothed with greenish-ochreous hairs; thorax and abdomen beneath clothed with whitish hairs. Palpi blackish. Antennæ black, annulated with white beneath, club reddish-carmine beneath. Legs reddish-fuscous. Forewings elongate-triangular, costa nearly straight, termen gently bowed, oblique; ochreous-fuscous, with somewhat golden reflections; markings golden-metallic; a large elongate-ovate spot in posterior end of cell, somewhat indented in middle above; a moderate, somewhat quadrate spot beyond lower extremity of first spot, sometimes surmounted by 2 or 3 small additional spots, but these are generally absent; stigma narrow, black, more or less broken into 5 or 6 elongate spots, from inner margin at two-thirds, terminating between quadrate and ovate spots; cilia dark fuscous. Hindwings with termen rounded, color as in forewings; base and inner margin clothed with greenish-ochreous hairs; an elongate patch of dull orange in middle of wing, not near reaching termen; cilia reddish-ochreous, mixed with fuscous at base. Under side of forewings reddish-ochreous, upper margin of cell narrowly orange throughout, large cellular spot of upper side reproduced, and

edged posteriorly with blackish, which color is continued obliquely to inner margin and basal area of wing; a large golden-orange quadrate spot between veins 4 and 5; a second, larger, immediately below; a third, somewhat paler and much narrower below second; a very elongate yellowish blotch immediately below, extending to termen; a second, just below, more or less suffused anteriorly; a very small whitish spot between veins 7 and 8, blackish edged; cilia reddish-fuscous, mixed with blackish, darker around inner margin. Hindwings and cilia reddish-ochreous, without markings.

A large and distinct species not nearly approaching any other in general appearance. The species known as *Idothea*, Miskin, is considered by some to be the female of the present species, *vide* Kirby, Ann. Mag., N.H., vi., 436, 1893, which is not improbable, but in the absence of authentic information we prefer to keep them separate at present.

Hobart, Tasmania; Grampians, Wandin, and Macedon, Victoria; in December and January.

25. Telesto idothea, Misk.

(Proc. Roy. Soc., Queensland, p. 152, 1889; *A. and S.*, Vict. Butt., p. 116, 1893.)

Female, 40 mm. Head, palpi, thorax, and abdomen dark fuscous, mixed with greenish-ochreous hairs, whitish-ochreous beneath. Antennæ dark fuscous, annulated with white beneath, club reddish beneath. Legs ochreous. Forewings elongate-triangular, costa gently arched, termen gently bowed, oblique; dark fuscous golden; markings golden, somewhat hyaline; basal hairs orange; a large irregularly quadrate spot in posterior end of cell, anterior edge with a faint tooth in middle, posteriorly slightly indented above middle; a cartridge-shaped post-cellular spot beyond and below, apex almost touching cellular spot; a second, elongate-quadrate immediately below; a third below middle of second, irregular- triangular; a fourth, somewhat ovoid, immediately below third, sometimes joined to third by 2 or 3 golden scales; an oblique transverse series of three quadrate sub-costal spots, lower largest; cilia fuscous, chequered with black. Hindwings with termen hardly waved; dark fuscous inclining to blackish; basal and inner marginal hairs greenish-yellow; a very large somewhat cuneiform patch of orange, from near base to two-thirds of wing, bounded by veins 2 and 6, much dilated posteriorly, posterior edge with 2 semi-circular excavations between veins 2 and 4; cilia reddish-ochreous, chequered with

black at extremities of veins. Under side of both wings reddish-ochreous, dorsal two-thirds of forewings blackish, not reaching inner margin above middle; cellular and first 2 post-cellular spots of upper side, reproduced; sub-costal spots hyaline, somewhat suffused and more or less edged with black; inner margin whitish-ochreous, except basal third, which is blackish; 2 lower post-cellular dots appear as elongate blotches of whitish-ochreous; some orange scales along upper margin of cell; cilia as above. Hindwings with markings black, comprised of 3 small dots, with indications of a fourth; first and second at two-thirds from base, between veins 2 and 4; third between veins 6 and 7 at two-thirds from base; fourth hardly traceable, preceding first; inner margin broadly dull white; cilia as above.

This insect is in all probability the female of the preceding species, a view shared by others than ourselves, but as the question in still in doubt it appears better to await further information before insisting on the point.

It is an attractive and easily recognised species, specially characterised by the large brilliant orange patch of hindwings.

The larva, which is similar to *Trapezites iacchus* in appearance, feeds on *Cladium*. The pupa is blackish, with rugose head.

Katoomba, New South Wales; Wandin and Healesville district, Victoria; two specimens in December.

26. Telesto flammeata, Butler.

(A and M.N.H. (5), ix., p. 85, 1882; *T. eclipsis*, *Butl.*, *l.c.*, p. 86, male; *Hesperilla atromacula*, *Misk.*, Proc. Roy. Soc., Queensland, p. 148, 1889.)

Male, 28-34 mm. Head, palpi, thorax, and abdomen dark fuscous, densely clothed with greenish hairs, beneath whitish-ochreous. Antennæ blackish, annulated with whitish, beneath more or less whitish throughout, club reddish above, whitish beneath. Legs dull reddish-ochreous. Forewings elongate-triangular, costa somewhat arched at base, faintly sinuate in middle, termen gently bowed, oblique; golden-ochreous, basal two-thirds of wing more or less clothed with dense orange hairs, somewhat curled in disc; markings yellowish; an irregular elongate spot in posterior end of cell; a second, similar, immediately beyond extremity of cell, between veins 3 and 4, beneath which is a very large rounded patch of velvety black; a small sub-apical spot between veins 6 and 7; a suffused blackish line along termen; cilia ochreous-fuscous, somewhat

chequered with blackish. Hindwings with termen somewhat waved; color as in forewings; base and inner margin more or less clothed with orange hairs; an elongate patch of orange above middle of wing, between veins 4 and 6, not reaching either margin; cilia ochreous. Under side of forewings ochreous, somewhat reddish tinged; costa from base to beyond middle yellowish, markings of upper side reproduced, somewhat hyaline; black patch absent; median third of wing dark fuscous, ground color becoming whitish-ochreous between vein 1 and inner margin; cilia as above. Hindwings with color as in forewings, 2 or 3 small suffused fuscous spots at end of cell; a curved series of about 6 similar spots at two-thirds from base, between veins 1 and 7; cilia as above.

Female, 28 mm. Head, palpi, thorax, and abdomen blackish, more or less clothed with greenish-ochreous hairs, beneath as in male. Legs and antennæ as in male. Forewings as in male, but termen more bowed; ochreous-fuscous, more or less wholly irrorated with purple reflections; basal hairs yellowish wholly irrorated with purple reflections; basal hairs yellowish; markings golden; a large roundish spot in posterior end of cell; a cartridge-shaped spot immediately below and beyond, between veins 3 and 4; a similar, but larger spot immediately below, separated from above by vein 3; an oblique transverse row of 3 sub-costal spots, at about two-thirds from base, lower largest; cilia ochreous, with blackish points at extremities of veins. Hindwings with shape, color, markings, and cilia as in male. Forewings beneath with color as in male; markings of upper side reproduced, but color dull ochreous. Hindwings beneath with color and markings as in male.

An easily recognised species, especially the male. The large black sexual blotch being a conspicuous character.

Healesville, Lake Tyers, Gisborne, Wandin, and Powong, Victoria; Como, New South Wales; in January and February.

27. Telesto tymbophora, n. sp.

Male, 30 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark fuscous, palpi dull whitish beneath, thorax and abdomen more or less clothed with ochreous hairs. Forewings elongate, triangular, termen gently bowed, oblique; dark fuscous, clothed with scattered golden-ochreous hairs; basal hairs ochreous, sparse; a very small hyaline dot at base of veins 6 and 7; stigma large, roundish, just above vein 1 in middle; cilia ochreous. Hindwings with termen faintly sinuate before anal angle; color and cilia as in forewings; basal and inner marginal hairs dull golden-ochreous.

Under side of both wings dull fuscous, more or less sprinkled with yellowish, so as to appear ochreous-fuscous; dot of upper side of forewings reproduced.

A curious and conspicuous species, closely allied to *Flammeata*. We once thought it might be an aberrant form of that species, but having seen several specimens, all similar, we have decided to name it.

Mount Kembla, New South Wales; one specimen taken in December.

28. Telesto atralba, Tepp.

(*Hesperilla atralba, Tepp.* Trans. Roy. Soc., S.A., iv., p. 33, t. 2, f. 5, 1881; *Telesto dactyliota, Meyr*, Proc. Linn. Soc., N.S.W., p. 831, 1887.)

Male and female, 25-33 mm. Head, palpi, thorax, and abdomen fuscous grey, palpi whitish beneath, hairs of abdomen yellowish tinged. Antennæ black, slenderly annulated with white. Forewings with costa almost straight, termen rounded, almost oblique; rather dark fuscous, in male ochreous shining; basal third clothed with pale ochreous-yellowish hairs; spots pale whitish yellowish, thinly scaled, in male very small, in female moderate; first in middle of disc, transverse; second between veins 3 and 4 at base, roundish, in female with an additional larger spot adjacent to it beneath; three adjacent spots, arranged in a transverse series beneath costa at three-fourths; 2 others obliquely beneath and beyond; stigma in male, strong, blackish, from lower angle of first spot to beyond middle of inner margin; cilia grey-whitish, basal half barred with darker. Hindwings with termen rounded; ground color and cilia as in forewings, dorsal half clothed with pale ochreous yellowish hairs; a pale ochreous-yellowish cloudy longitudinal-oval discal blotch, beneath and beyond which are several very obscure cloudy pale ochreous-yellowish spots, in male tending to form a post-transverse series. Forewings beneath dark fuscous; an obscure, yellowish suffusion beneath costa on basal half; a triangular blotch suffused with whitish grey, occupying apical fourth of wing; spots as above, but in male with an additional spot beneath posterior discal spot, as in female. Hindwings beneath light grey, mixed with fuscous towards costa; spots round, outlined with dark fuscous; a very small one beneath costa at one-third; a similar one in disc before middle; two dot-like, before middle, towards inner margin; seven moderately large spots, placed as an acutely angulated post-median series.

Port Lincoln, Noarlunga, and Moonta, South Australia; Geraldton, Western Australia; in October and November.

29. Telesto Doubledayi, Feld.

(Verh. Zool. Bot. Ges., xii., p .491, n. 180, 1862; male, *Hesperilla dirphia*, H.S., *nec.* Hew., Stett. Ent. Zeit,, p. 79, n. 61, Taf. iii., fig. 10, 1869; ? female, *Tel. Leachii, Feld.*, Verh. Zool., Bot. Ges., xii., p. 491, n. 181, 1862; *A. and S.*, Vict. Butt., p. 126, 1893.)

Male and female, 28-30 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, thorax, and abdomen clothed with greenish-yellow hairs, beneath whitish, antennæ spotted beneath with yellowish, club reddish above, whitish beneath. Forewings elongate, triangular, termen bowed, oblique; ochrerous fuscous, with golden reflections; markings yellowish; an elongate spot in cell, extending from beyond middle to posterior extremity, where it is curved to upper edge of cell; much shorter in female; a quadrate spot above and beyond extremity of stigma; a second, smaller, just below, becoming very large in female; an oblique transverse row of 3 whitish spots beyond two-thirds from base; stigma dull fuscous, edged on either side narrowly with black, erect, somewhat waved, from immediately above inner margin at two-thirds to before lower post-cellular spot, cilia fuscous, mixed with whitish. Hindwings with termen hardly waved; color as in forewings; a large patch of dull yellow hairs, extending from base along inner margin to two-thirds, more dense in middle, but not forming definite markings; cilia yellowish, at base fuscous. Under side of forewings purplish-fuscous, markings of upper side reproduced; a moderately broad bluish white marginal streak, extending from middle of termen to apex; inner margin broadly fuscous-whitish throughout, cilia as above. Hindwings beneath purplish-fuscous, irrorated throughout with bluish white, except a submedian band of 5 contiguous moderate fuscous spots; cilia as above.

At once recognised by the rich coloring of under side of hindwings and curious cellular spot of male. We think that the insect figured in "Victorian Butterflies," p. 126, as *Hesperilla arsenia*, Plotz., represents the female of this species, as there are seven spots, not six, on upper side of *Arsenia*, male. There is an excellent figure of the male (figured as *Dirphia*, Hew.) in Stett. Ent. Zeit., taf. iii., fig. 10.

Gympie, Duaringa, Mackay, and Brisbane, Queensland; Como and Sydney, New South Wales; Healesville and Wandin, Victoria; from November to March.

30. Telesto leucostigma, n. sp.

Male and female, 26-30 mm. Head, palpi, antennæ, thorax, legs, and abdomen golden-fuscous, antennæ faintly spotted with whitish, palpi beneath whitish, hairs of abdomen deep golden-ochreous. Forewings elongate, triangular, termen gently bowed, oblique; dark fuscous, finely sprinkled golden-ochreous; basal hairs golden-ochreous; markings semi-hyaline, faintly ochreous-tinged; a sickle-shaped spot, in female somewhat quadrate, in posterior extremity of cell sometimes almost obsolete in male; a transverse series of three sub-apical spots, sometimes absent in male; a quadrate spot at base of veins 3 and 4, and a smaller one immediately below; stigma white, moderately erect, faintly curved outwards at apex, entire, edged on either with black; cilia ochreous-fuscous. Hindwings with termen rounded; color as in forewings, but without markings; basal and inner marginal hairs long, golden-ochreous; cilia ochreous. Female with color as in male, but markings more yellowish and much enlarged; indications of a small spot on vein 1 beyond middle. Under side of forewings in both sexes fuscous, somewhat purplish tinged, becoming dull ochreous along posterior half of dorsum; markings of upper side except stigma, reproduced. Hindwings more reddish-purplish, with 2 faintly indicated transverse rows of fuscous spots.

Allied to *Doubledayi*, but differs from any other Australian species by the white stigma, which is a very distinctive character; the occasional absence of the sub-apical spots and of cellular spot are curious forms of variation.

Kuranda and Brisbane, Queensland; Mount Kembla, New South Wales; two specimens in October.

31. Telesto ismene, Newm.

(*T. parvulus*, *Plotz.*, Stett. Ent. Zeit., p. 378, 1884; *Telesto ismene*, *Meyr.*, Ent. Mo. Mag., p. 82, 1885; *A. and S.*, Vict. But., p. 128, 1893; *Hesperilla humilis*, Misk, male, P.R. Soc., Queensland, p. 150, 1889.)

Male, 24 mm. Head, palpi, thorax, and abdomen dark fuscous, thorax and abdomen mixed with golden-ochreous hairs, palpi, thorax, and abdomen beneath whitish. Legs ochreous-whitish. Antennæ blackish, annulated with white, club blackish, apex reddish beneath. Forewings elongate-triangular, termen gently bowed; ochreous-fuscous, with golden reflections, basal third more or less clothed with short orange hairs; markings whitish; a narrow, somewhat 8-shaped spot

in posterior end of cell, rarely obsolete; a small roundish spot almost touching apex of stigma; an oblique transverse row of 3 small sub-costal spots, at about two-thirds from base, sometimes edged with fuscous; stigma hyaline, broadly edged with black on either side, from inner margin just beyond middle, somewhat curved outwards so as to nearly touch post-cellular spot, anteriorly twice indented, much constricted below middle; cilia greyish-fuscous, with blackish points at extremities of veins. Hindwings with termen hardly waved; dark fuscous, with golden reflections, hairs on base and inner margin somewhat ochreous; cilia as in forewings. Under side of forewings fulvous, markings of upper side, except stigma, reproduced; a dull whitish patch above anal angle. Hindwings with a transverse sub-median band of about six indistinct contiguous reddish-ochreous spots; cilia as above.

Female, 26-30 mm. With coloring as in male, 8-shaped, post-cellular and sub-costal spots as in male, beneath post-cellular spot is a larger spot, slightly and obliquely beyond; a smaller spot below this, and indications of another between the two last-mentioned; cilia as in male. Under side of both wings as in male, markings of forewings reproduced, excepting the two spots below second post-cullular spot; transverse band of hindwings more pronounced than in male.

Closely allied to *Doubledayi*, Feld. The male is best distinguished by the cellular spot, which in the present species is somewhat obscured but well developed and large in *Doubledayi*. The female is much more similar, but the additional post-cellular spots and coloring of hindwings are efficient characters to distinguish it from that species.

Healesville, Nar-Nar-Goon, Lake Tyers, Victoria; Brisbane, Mackay, and Duaringa, Queensland.

32. Telesto sexguttata, Herr-Sch.

(Stett. Ent. Zeit., p. 80, n. 64, t. 3, fig. 16, 1869).

Male, 30 mm. Head, thorax, palpi, antennæ, and abdomen golden-ochreous. Forewings elongate-triangular, termen nearly straight, faintly sinuate on lower half; golden-ochreous, markings pale ochreous; a cartridge-shaped spot just above and beyond apex of stigma; a second, much smaller, somewhat triangular, immediately below; a third, more suffused below second, and a fourth, suffused resting on vein 1; an oblique transverse series of 3 (lower one more or less absent) sub-costal spots before apex; second largest; stigma narrow, waved,

oblique, entire, black; commencing at base of vein 5 and terminating on vein 1 near fourth spot; cilia pale ochreous, with a dark line at base. Hindwings with termen faintly waved; color and cilia as in forewings; a few ochreous hairs below cell. Under side of both wings pale ochreous; a broad dull fuscous sub-median streak on forewings; markings of upper side reproduced; a dull whitish elongate patch on inner margin near anal angle; cilia of both wings as above.

Female, 36 mm. Color and markings, except stigma, as in male, but spots larger, the fourth being conspicuous; the third is absent.

An easily recognised species; the absence of the third subcostal spot is curious. A specimen in the Macleay Museum, probably referable to this species, has all the markings of forewings, except stigma, obscured, otherwise similar. Herrich-Schaeffer's figure is accurate; it represents the female.

Bowen, Queensland; two specimens, male and female, in Brisbane Museum collection.

33. Telesto perronii, Latr.

(*Hesperia perronii, Latr.*, Enc. Meth., ix., p. 763, n. 100, 1819; *Tel. perronii, Bdv.*, Voy. Astr. Lep., p. 164, 1832; *T. Kochii, Feld.*, Verh. Zool. Bot. Ges., xii., p. 491, n. 179, 1862; *Herr Schaff.*, Ent. Stett. Zeit., t. 3, fig. 12; *Hesperilla doclea, Hew.*, Desc. Hesp., p. 39, n. 4, 1868; ? *Tel. arsenia, Plotz.*, Stett. Ent. Zeit., xlv., 384, 1884.)

Male, 26-30 mm. Head, palpi, thorax, and abdomen dark fuscous, thorax and abdomen clothed with greenish-ochreous hairs, beneath whitish-ochreous. Antennæ dark fuscous, annulated beneath with ochreous-whitish, club reddish above, whitish ochreous beneath. Legs ochreous. Forewings elongate-triangular, termen gently bowed, oblique; ochreous-fuscous, with golden reflections; base of wing clothed with short dense yellowish hairs; markings whitish, somewhat hyaline; an elongate mark in posterior end of cell, posteriorly narrowly curved upwards so as to becoming somewhat sickle-shaped; a somewhat quadrate post-cellular dot, just beyond apex of stigma, indented above middle posteriorly; a small dot obliquely below; a transverse series of 3 small sub-costal spots, at about two-thirds from base; stigma black, broad, entire, oblique, extremities much narrower, from immediately above inner margin to just before first post-cellular quadrate spot; cilia whitish, basal half fuscous. Hindwings with termen rounded; color as in forewings; basal two-thirds of inner margin clothed with long ochreous hairs; cilia as in forewings. Under side of forewings fulvous, becoming fus-

cous from below cell and towards lower half of termen; inner margin broadly fuscous-whitish; markings of upper side reproduced, but lower post-cellular spot much enlarged and somewhat cuneiform; cilia fuscous-fulvous. Hindwings fulvous; a few obscure spots of fuscous near base; a sub-median row of transverse fuscous spots; cilia as in forewings.

Female, 34 mm. Head, palpi, thorax, antennæ, legs, and abdomen as in male. Forewings with costa arched at base, termen bowed, oblique; ochreous-fuscous, somewhat tinged with purplish, basal one-third of wing clothed with short ochreous hairs; markings silvery-white; an irregularly eight-shaped spot at posterior end of cell, upper half much constricted, and almost obsolete in some specimens; a cartridge-shaped spot beyond lower extremity of cell; an elongate quadrate spot before and below it, separated by intervening vein; an oblique transverse row of 3 quadrate spots at two-thirds from base, median smallest; cilia as in male. Hindwings with termen rounded; color as in forewings, basal two-thirds of inner margin clothed with dull ochreous hairs. Under side of forewings dull ochreous-fuscous; markings of upper side reproduced; inner margin as in male. Hindwings with color as in forewings; sub-median series of dots as in male, but hardly traceable; cilia fuscous.

The male of this is easily recognised by the broad black stigma, which indicates the species with certainty; the female on the upper side is not unlike a large female specimen of *Doubledayi*, Newm. We have doubtfully quoted *Arsenia*, Plotz., as a synonym; possibly that species is identical with female of *Ismene*.

Larvæ full fed 25-30 mm. Head reddish-fuscous, mixed with blackish and becoming broadly blackish behind and on sides; V-shaped mark fuscous moderately indicated, body cylindrical, moderately thick throughout, hardly smooth; light fuscous, finely irrorated with blackish. (In the early stages it is fleshy-pink, without any traceable lines.) Dorsal well defined, moderate, black; spiracular, supra, and sub-spiracular dark fuscous, latter very faintly indicated, spiracles small, fuscous; anal segment paler than general ground color. Feeds on various grasses (? *Xerotes*, Sp.); also bred from larvæ feeding on *Cladium asperum*. Pupæ dark fuscous, shaped exactly as in *Trapezites iacchus, Fab.*

Sydney and Como, New South Wales; Ocean Grange, Victoria; Brisbane to Mackay, Queensland; from November to February, eleven specimens.

34. Telesto compacta, Butl.

(Male. A.M.N.H. (5), ix., p. 87, 1882; female, *Hesperilla scepticalis*, Rosen, *l.c.*, xvi., p. 379, t. 11, fig. 2, 1885; *A. and S.*, Vict. Butt., p. 127, 1893.)

Male, 25 mm. Head, palpi, thorax, and abdomen golden-ochreous, densely clothed with short greenish-ochreous hairs; beneath whitish. Antennæ dark fuscous, annulated beneath with ochreous, club with apical two-thirds reddish. Legs reddish-ochreous, anterior pair mixed with whitish. Forewings elongate-triangular, costa slightly arched at base, faintly sinuate in middle; termen bowed, oblique; dark golden-ochreous; markings yellowish-white; an elongate sub-crescentic mark in posterior end of cell, posterior extremity hardly reaching end of cell; a moderate roundish post-cellular spot above and beyond apex of stigma; an oblique transverse series of 3 somewhat quadrate sub-costal spots, at about two-thirds from base, median smallest; stigma short, black, somewhat broken into spots, obliquely placed, from considerably above inner margin towards anterior edge of post-cellular spot, but not near reaching it; cilia ochreous-reddish, mixed with blackish and with a dark fuscous terminal line. Hindwings with termen slightly waved; color as in forewings; base and inner margin clothed with greenish-ochreous hairs; markings yellowish-white; 2 very small roundish spots at one-third from base in middle; a transverse band of four cartridge-shaped spots at about two-thirds from base, upper one much smaller and touching second; cilia as in forewings. Under side of forewings yellowish-orange, dorsal half broadly blackish-fuscous; markings of upper side, except stigma, reproduced, but color more silvery, especially sub-costal spots. Hindwings reddish-ochreous; markings of upper side reproduced in silvery white, and more or less edged with dark fuscous; an additional similar and smaller spot lying between veins 7 and 8 near base; 2 very small spots, one above first spot of band; second, adjacent to fourth spot of band, the whole forming a band of six spots instead of four; cilia reddish-ochreous.

Female, 24-26 mm. Head, palpi, thorax, and abdomen dark fuscous, clothed with greenish-yellow hairs, beneath whitish, abdomen beneath fleshy-white. Legs reddish-ochreous. Antennæ dark fuscous, annulated above and below with white, club dark fuscous, beneath reddish. Forewings elongate-triangular, costa gently arched, termen bowed, oblique; dark golden-fuscous; basal area sparsely clothed with short ochreous hairs; markings whitish, semi-hyaline; a somewhat 8-shaped spot

in posterior end of cell, upper half constricted; a moderate cartridge-shaped post-cellular spot, considerably beyond first; a moderate quadrate spot below; a small triangular spot above inner margin, at about two-thirds, lying on vein 1; cilia reddish fuscous, base blackish. Hindwings with color as in forewings, termen rounded, basal and inner marginal areas more or less clothed with long orange hairs; a large yellowish, in male orange, elongate-quadrate spot in middle of wing, immediately below posterior extremity of cell; two small, suffused, somewhat cuneiform yellowish spots, parallel to this, second hardly perceptible on account of density of inner marginal hairs; cilia as in forewings. Underside of forewings with costal half orange-ferruginous, dorsal half more or less dark fuscous; a narrow streak whitish-lilac, from apex along termen to above anal angle; markings of upper side reproduced; cilia ochreous-ferruginous. Hindwings with color as in forewings, lilacine streak continued as a band for whole length of termen, and edged above by its own width of dark ferruginous, on upper extremity of which is a series of suffused blackish, white-centred small spots; markings of upper side reproduced in obscure ochreous-white; two or three suffused similar dots between posterior extremity of cell and base; cilia as in forewings.

The male of this species stands conspicuously distinct by the hyaline markings of hindwings, and approaches no other described species from Australia; the female is a totally dissimilar looking insect, and was until recently considered a distinct; in fact, Watson (P.Z.S., 1893), stated that they constituted distinct genera, but Mr. Waterhouse has taken them frequently *in cop.* which is decisive. The under side of this sex is not unlike the female. *Trapezites maheta*, Hew. Mr. Miskin has re-described (P.R. Soc., Queensland, p. 149, 1889) what he considers the male of this species, and from the description it evidently pertains to this species, although no mention is made of the stigma being present.

Sydney, Newcastle, and Katoomba, New South Wales; Gisborne, Macedon, Wandin, Pakenham, Ferntree Gully, and Sale, Victoria; four specimens from February to April.

Mr. Miskin records it from Port Darwin.

35. Telesto senta, Misk.

(Female. *Hesperilla senta*, Misk., Ann., Q'nd. Mus. Supp., 1891.)

Male, 28 mm. Head, thorax, palpi, and abdomen dark fuscous, abdomen ringed with whitish, palpi, and thorax beneath ochreous-whitish. Antennæ dark fuscous, spotted beneath

with whitish, club reddish. Legs dark fuscous, yellowish tinged. Forewings elongate-triangular, costa faintly sinuate in middle, termen hardly rounded, oblique; dark golden-fuscous; markings silvery white; an irregular quadrate spot in posterior end of cell, strongly indented anteriorly and posteriorly, lower edge somewhat elongate; a dull ovoid spot immediately below; stigma narrow, entire, oblique, somewhat whitish, edged posteriorly by a narrow black line, from two-thirds of inner margin to base of veins 4 and 5; a somewhat cartridge-shaped spot touching its apex; a small spot immediately below preceding spot; an oblique transverse row of 3 cartridge-shaped sub-costal spots at two-thirds from base, median smallest; cilia dark fuscous-whitish. Hindwings with termen rounded; color and cilia as in forewings; a moderate ovate whitish spot at two-thirds from base, between veins 6 and 7; a similar spot at two-thirds from base, between veins 3 and 4. Under side of forewings dark fuscous, markings of upper side, excepting stigma reproduced; cell with some orange scales; 3 irregular suffused ochreous patches between inner margin and cell, hardly forming definite markings. Hindwings with color as in forewings; inner margin broadly irrorated with yellowish scales; markings whitish more or less edged with fuscous; a very obscure spot at base of veins 7 and 8; a second in end of cell, moderate, roundish; a third between veins 7 and 8 at two-thirds from base; a fourth, ovate, largest, immediately below; and two others, similar and parallel, between veins 2 and 4; an obscure row of small parallel whitish dots before termen.

Female, 31 mm., with color and markings as in male, but forewings with an additional sub-costal spot, large quadrate spot resting on vein 1 in middle, and the other spots much enlarged, especially that between veins 2 and 3. Hindwings: a large spot at posterior extremity of cell and a curved row of six hyaline spots before and parallel to termen, apical one the largest. Under side as in male.

Nearest *Croceus*, Misk., but very distinct and easily recognised by the number and arrangement of spots on upper side of hindwings.

Cooktown and Cairns, Queensland; two specimens in November.

The type (female) is in the Brisbane Museum.

36. Telesto croceus, Misk.

(Male. *Hesperilla croceus*, Misk., Proc. Roy. Soc., Q'd, p. 150, 1889; female, *l.c. nec.*, *Croceus*.)

Male and female, 30-36 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark ochreous-fuscous, palpi beneath whitish-ochreous, thorax clothed with yellowish hairs, abdomen ringed obscurely with whitish-ochreous. Forewings elongate, triangular, costa nearly straight, termen gently bowed, oblique; dark ochreous-fuscous, basal half of wing, especially in male, clothed with dense golden-ochreous hairs; markings pale ochreous; a transverse spot in posterior end of cell, in male elongate and continued along lower margin of cell to near middle, appearing somewhat sickle-shaped; an oblique transverse series of 3 sub-costal spots at three-fourths from base, median smallest; a small quadrate spot between veins 3 and 4 near base; another immediately below, between veins 2 and 3; in male elongate, narrow, in female large and cartridge-shaped; stigma black, erect, narrow, somewhat broken into spots, from immediately above inner margin at two-thirds to base of veins 3 and 4; cilia fuscous, becoming ochreous around anal angle. Hindwings with termen rounded, faintly sinuate before anal angle, color and basal hairs as in forewings, but yellow hairs mixed with scales and extending to beyond three-fourths of wing; 2 round whitish ochreous spots, separated by intervening vein, in middle of wing at two-thirds from base; cilia ochreous, fuscous at base. Under side of both wings fuscous, densely irrorated with orange-yellow scales, so as to appear orange-eyellow; markings of upperside, except stigma, reproduced; inner margin broadly whitish-ochreous throughout, more pronounced in female; markings of hindwings reproduced; cilia brighter than above.

Nearest *Xanthomera*, but differs by presence of spots on hindwings. Mr. Miskin, in describing the species, stated that the female had no spots on hindwings, but the insect which he mistook for the female of this species is the following species. The female *Croceus* has spots on hindwings similar to male, though sometimes obscured, and at first sight bears a close resemblance on upper side to *Trapezites tasmanicus*, Misk.

Brisbane, Cooktown, Cairns, and Townsville, Queensland; in October and November.

37. Telesto xanthomera, n. sp.

Male 30, female 36 mm. Head, palpi, antennæ, thorax, legs and abdomen dark fuscous, palpi whitish beneath, abdomen ringed with whitish, thorax clothed with yellowish hairs. Forewings elongate, triangular, costa faintly arched near base,

thence straight, termen gently bowed, oblique; ochreous-fuscous, with pale yellowish markings; basal hairs yellowish; stigma black, erect, edged with darker, entire, anteriorly dentate, from inner margin to base of veins 3 and 4; a large spot in end of cell, anteriorly indented above middle; in male becoming elongate on lower half; a second, somewhat cuneiform, lying at base of veins 3 and 4; a third, cartridge-shaped, immediately below; a fourth, ovoid, just below cellular spot, touching third, and sometimes confluent with it; a fifth, suffused, quadrate, lying on middle of vein 1; an oblique transverse series of 3 quadrate sub-costal spots at twothirds from base; cilia ochreous-fuscous, barred with dark fuscous. Hindwings with termen rounded; color as in forewings; basal hairs yellowish; an elongate, moderate patch of dull yellowish-orange scales in middle of disc; cilia whitish; barred with fuscous. Under side of both wings fuscous, densely irrorated with with yellow scales, so as to appear yellow; markings of upper side faintly reproduced; lower portion of cell blackish; a faint blackish suffusion beyond post-cellular spots; hindwings without markings.

Somewhat allied to the preceding, but easily separated by the absence of markings on hindwings above and below.

In one female specimen there are thirteen veins in forewing, caused by the stalking of vein 3. It occurs in one wing only.

Brisbane and Cairns, Queensland; two specimens in March and September. We have also seen specimens taken in Victoria and New South Wales.

38. Telesto crypsigramma, n. sp.

Male, 26 mm. Head, palpi, thorax, and abdomen dark fuscous, mixed with ochreous, hairs beneath whitish. Antennæ blackish (broken). Legs fuscous, mixed with whitish. Forewings elongate-triangular, costa gently arched at base, termen rounded, oblique; golden-ochreous; markings whitish, an irregular mark in middle of cell, suffused; two roundish spots beyond apex of stigma, upper largest; an oblique transverse row of 3 sub-costal spots near apex, upper one hardly traceable; stigma black, entire, moderately thick, oblique, from above inner margin to posterior extremity of cell, anterior edge suffused, posterior edge well defined; cilia fuscous-whitish (imperfect). Hindwings with termen faintly waved; color as in forewings, sparsely clothed with golden-ochreous hairs towards base; cilia fuscous. Under side of forewings dull ochreous-fuscous; markings of upper side faintly reproduced, excepting

post-cellular spots, which are prominent and somewhat enlarged; a large roundish dull white blotch at anal angle; cilia as above. Hindwings with color and cilia as in forewings.

This insect, although not in the best of condition for description, indicates a species easily recognised by the paucity of markings, and somewhat unusual shape of stigma, which latter is similar to that of the male, *T. perronii*, Latr.

Two specimens; Herberton, Queensland, in November.

39. Telesto bathrophora, n. sp.

Male, 28 mm. Head, palpi, thorax, antennæ, and abdomen blackish-fuscous, palpi, head, and thorax mixed with golden-greenish hairs, antennæ beneath annulated with whitish, club whitish beneath, palpi and thorax whitish beneath. Legs golden-fuscous. Forewings elongate-triangular, costa gently arched at base, termen gently bowed, oblique; dark fuscous, with a greenish-golden sheen; without markings; stigma entire, moderate, whitish, oblique, edged on either side narrowly with blackish, from above vein one to posterior extremity of cell, anterior edge with a moderate projection in middle, posterior edge moderately straight; cilia dark fuscous. Hindwings with termen rounded; color and cilia as in forewings; without markings; a few golden-ochreous hairs towards base. Under side of both wings ochreous-fuscous; inner margin of forewings broadly dull-whitish; cilia of both wings as above.

Female, 30 mm. Head, palpi, antennæ, thorax, legs, and abdomen as in male. Forewings as in male, but termen more bowed; markings white; a somewhat quadrate spot between veins 4 and 5 near base; an oblique transverse series of 3 quadrate sub-costal spots, median smallest; cilia as in male. Hindwings with termen rounded; cilia as in male. Under side of forewings as in male, markings of upper side reproduced; cilia as above. Hindwings somewhat darker; an obscure transverse band of dull whitish scales, from beneath costa in middle, curved round towards middle of inner margin, and there lost in general ground color; fainter indications of a parallel series above termen; cilia as above.

A conspicuous and easily recognised species. Distinct from all the known Australian Congeners by the whitish stigma and absence of markings in male. We believe this is the insect that Mr. Miskin considered to be *Halyzia*, Hew.

Mackay and Duaringa, Queensland; three specimens in November and December.

7. *Trapezites, Hüb.

Club of antennæ elongate, pointed, more or less bent. Palpi obliquely ascending or sub-porrect, terminal joint short, sub-conical. Posterior tibiæ with all spurs. Forewings in male without stigma; 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings with 5 obsolete.

Differs from *Telesto*, Boisd., by the absence of stigma in male. The species vary very little, with perhaps the exception of *Iacchus* and *Phigalia*. In the following tabulation it will be noticed that the under side of hindwings forms the chief characteristic. The male and female present no differences, with the exception of the termen of hindwings of the former, which are somewhat prominent at anal angle.

1. Hindwings below fuscous, with a single black, white-centred spot — 41 *Petalia*.
   Hindwings below yellow, with similar spot and two additional above termen ... ... — 40 *Heliomacula*.
2. Hindwings below, with a sub-median transverse row of large, white, blackish-edged spots ... — 42 *Symmomus*.
   Hindwings below without such spots ... ... — 44 *Maheta*, female.
3. Hindwings below with 2 transverse series of roundish silvery spots — 44 *Maheta*, male.
   Hindwings below with elongate (one very elongate) silvery-white streaks ... ... — 46 *Argenteo ornata*
4. Hindwings above with a large triangular orange median patch, not cut by veins ... — 43 *Croites*, female.
   Hindwings above with transverse orange patch cut by veins ... — 5
5. Hindwings below fulvous, with 5 small white spots, blackish edged ... ... — 42a *Iacchus*.
   Hindwings below lilacine without such spots ... ... — 6
6. Forewings above with orange spot in cell edged on either side with black ... ... — 50 *Phigalia*.
   Forewings above with cellular spot not edged with blackish ... — 8
7. Hindwings above with 2 small roundish white sub-median

	spots	51	*Tasmanicus.*
	Hindwings without markings ...	9	
8.	Hindwings beneath yellow, with a single white, black-edged median spot	45	*Lutea.*
	Hindwings beneath fuscous, with similar but more blackish spot	1	
9.	Hindwings beneath ochreous-fuscous, with 3 transverse series of white lunulate spots ...	49	*Gracilis.*
	Hindwings beneath orange-fuscous, with only one row of spots...	2	
10.	Forewings beneath with a very large cuneiform black patch, markings of upper side absent	47	*Sphenosema.*
	Forewings beneath similar, but spots of upper side more or less reproduced	48	*Paraphaes.*

40. Trapezites heteromacula, n. sp.

Male, 36 mm. Head, thorax, and abdomen golden-ochreous, abdomen sparsely clothed with yellowish hairs, segmental margins narrowly whitish. Antennæ fuscous, faintly annulated with white, club ochreous beneath, reddish above. Palpi ochreous-yellow. Forewings elongate, triangular, termen gently bowed, oblique; fuscous, mixed with yellowish; a narrow elongate bright orange streak along dorsum from base to middle, finely attenuated at base; a somewhat suffused roundish spot immediately above posterior extremity of this streak; a large golden hyaline elongate-quadrate spot at base of veins 3 and 4; a second, similarly colored, elongate-cartridge-shaped spot immediately above, almost lying base of veins 5 and 6; a third quadrate in posterior end of cell; a transverse series of three sub-apical cartridge-shaped spots; cilia fuscous, becoming ochreous-tinged around anal angle. Hindwings with termen faintly sinuate before anal angle; color as in forewings, but cell darker; basal and dorsal hairs bright yellow; a rather short, moderate, irregularly edged, orange median band, posterior extremity extending to vein 6, anterior continued along cell towards base; cilia fuscous, becoming yellowish on terminal half. Under side of forewings bright yellowish; markings of upper side reproduced in pale whitish-ochreous. Hindwings with color as in forewings; band of upper side faintly reproduced; a moderately large black, white-centred median

spot; two small roundish, faintly fuscous edged whitish spots, lying midway between large spot and termen, cilia of both wings as above.

Appears to be intermediate in form between *Petalia*, Hew., and *Iacchus*, Fab., differing from the former by the brighter coloring and two additional spots on under side of hindwings, and from the latter by more abbreviated band of upper side of hindwings, and lesser number and position of spots on under side of hindwings.

Type in coll., Macleay Museum.

Endeavor River, Queensland; one specimen.

41. Trapezites petalia, Hew.

(*Hesperilla petalia*, Hew., Descr. Hesp., p. 32, n. 25, 1868; *Herr-Schaff*, Stett. Ent. Zeit, t. 3, fig. 11, 1869; *Telesto megalopis*, Meyr., Trans. Linn. Soc., N.S.W., p. 832, 1887.)

Male and female, 28-32 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, antennæ annulated with white beneath, palpi, thorax, and abdomen clothed with short ochreous hairs. Legs whitish. Forewings elongate-triangular, costa nearly straight, termen hardly rounded, oblique; golden-ochreous; markings semi-hyaline, dull golden; an irregularly eight-shaped spot in posterior end of cell; in female much enlarged and becoming somewhat quadrate; a cartridge-shaped post-cellular spot immediately beyond, indented posteriorly; a much larger, somewhat quadrate spot, immediately below, similarly indented; an irregular yellowish spot obliquely below; in female much larger, quadrate, and more whitish; inner margin from base to before two-thirds narrowly yellowish; an oblique transverse series of 3 elongate quadrate sub-costal spots, lower largest; cilia whitish-ochreous, basal half fuscous. Hindwings with termen rounded; color as in forewings; dorsal half of wing clothed with long yellowish hairs, excepting beneath yellowish patch; a moderate median yellowish patch, immediately beyond cell, anterior edge distinct, posterior edge somewhat suffused; cilia as in forewings. Under side of forewings dull ochreous, dorsal half dark fuscous, cell broadly blackish towards posterior extremity; markings of upper side reproduced; cilia as above. Hindwings grey-whitish; a large distinct round black spot slightly above middle of wing, suffusedly edged with dull yellowish; a small white (in female large) spot in centre of black spot; cilia grey-whitish.

Considerable confusion has arisen in the past in reference

to the correct identification of this species, it having until recently been confused with *Lutea*, Tepp., and *Iacchus*, Fab. At first sight it could easily be mistaken for the former, but the preponderance of yellowish markings on that insect, coloring of under side and longer forewings, separate the present species with certainty; from *Iacchus* it is easily separated by its smaller size, and especially by absence of small series of dots on under side of forewings.

Brisbane and Mackay, Queensland; Como, New South Wales; four specimens in March and November, appearing to frequent *Leptospermum*.

42. Trapezites symmomus, Hb.

(Zutr. Ex. Schmett., f. 225, 226, 1823; *Matthew*, Trans. Ent. Soc., p. 183, 1888; *Staudinger*, Ex. Schmett, t. 100, 1888; *Telesto praxedes*, Plotz., Stett. Ent. Zeit., xlv., p. 378, 1884; *Trapezites symmomus*, A. and S., Vict. Butt., p. 114, 1893.)

Male and female, 44-56 mm. Head, palpi, thorax, antennæ, and abdomen dark fuscous; abdomen and thorax mixed with greenish hairs, becoming fulvous on thorax anteriorly, abdomen with yellow segmental rings, palpi beneath yellowish orange, thorax beneath golden fulvous, abdomen beneath reddish, club of antennæ beneath orange, apex reddish. Forewings elongate-triangular, costa gently arched, termen bowed, oblique; dark golden fuscous, markings golden, somewhat hyaline; a large quadrate spot in posterior end of cell; a moderate somewhat cartridge-shaped post-cellular spot, between veins 3 and 4; a large elongate spot immediately below, anterior extremity extending to beyond middle of quadrate spot in cell, anterior edge indented above middle; a small triangular spot immediately below anterior edge; an oblique transverse row of 3 quadrate sub-costal spots at two-thirds from base; basal third of wing clothed with short orange hairs; a moderate streak of orange along costa from base to end of cell; inner margin narrowly orange from base to before middle; an irregular quadrate spot of orange immediately above posterior extremity of last-mentioned streak; cilia dark fuscous, becoming orange around anal angle and lower fourth of termen. Hindwing with termen gently waved; dark fuscous, tinged with purplish; basal hairs orange; a broad transverse median band of orange, between veins 1 and 6, irregularly waved above and below, becoming narrower towards inner margin; cilia orange, becoming somewhat barred with fuscous at extremities of veins. Under side

of both wings reddish-ochreous. Forewings with markings of upper side reproduced, but triangular spot continued obliquely and narrowly to vein 1, color yellow, as is inner marginal spot; base of cell triangularly blackish; a dark fuscous line beyond the 3 sub-costal spots, gradually enlarging and becoming suddenly confluent over upper half of hindmarginal area of wing; cilia as above. Hindwing with markings white; a roundish spot strongly encircled with black; a spot at one-third of inner margin edged with black on lower portion only; a curved transverse row of 6 irregularly quadrate spots, edged with blackish, especially on upper margin; first between veins 1 and 2, largest; fourth and fifth smallest; sixth moderate, between veins 6 and 7; cilia orange, with faint fuscous bars at extremities of veins.

Larva full fed, 36-40 mm. Stout, cylindrical, tapering towards posterior segments, body rugose throughout. Head dark fuscous, becoming blackish posteriorly, usual V-shaped lines whitish, hardly meeting posteriorly, and edged with blackish on inner edges; face reddish-fuscous, body reddish-fuscous, minutely with blackish; dorsal line broad, blackish, not well developed except on edges, supra-spiracular similar; spiracular and sub-spiracular lighter fuscous, hardly traceable, spiracles small, blackish. Full fed in October. Feeds on *Xerotes longifolia* and *Cladium*. The pupa is sub-cylindrical, fuscous and spotted with blackish, the posterior segments are somewhat pointed.

Easily recognised by its large size and brilliant coloring.

Watson (P.L.S., 1893) spells the name *Symmonus*.

Mackay and Brisbane, Queensland; Frankston and Grampians, Victoria; Waverley and Como, New South Wales; five specimens November to April.

42a. Trapezites iacchus, Fab.

(*Papilis iacchus*, Fabr., Syst. Ent., p. 532, n. 389, 1775; *Don*, Ins. New Holl., t. 31, fig. 1, 1805; *Boisd.* (*Steropis iacchus*), Voy. Astr. Lep., p. 169, n. 3, 1832; *Trapezites eliena*, Hew., Desc. Hesp., p. 32, n. 24, 1868; *Hesperia maheta*, Misk. (*nec.*, Hew.), Ann., Queensland Mus., p. 78, 1891; *T. iacchus*, A. and S., Vict. Butt., p. 115, 1893.)

Male and female, 34-38 mm. Head, palpi, thorax, and abdomen dark fuscous, clothed with pale greenish-yellow hairs, beneath pale yellowish. Antennæ fuscous, annulated with ochreous, posterior half beneath ochreous, apical half of club reddish beneath. Legs dull orange. Forewings elongate-

triangular, costa gently arched, termen bowed, oblique, varying from golden fuscous to dark fuscous; markings as in *Symmomus*, but triangular spot beneath elongate spot absent; cilia dark fuscous, terminal half yellowish, especially round anal angle. Hindwings with termen gently waved; color as in forewings; basal and inner marginal hairs orange; a transverse band of orange between veins 1 and 6, divided by veins into 4 spots, first narrow; second narrow, wedge-shaped; third similar, but smaller; fourth large, elongate-quadrate, reaching from end of cell to above inner margin, but not near reaching it; cilia as in forewings. Under side of both wings orange-fulvous, upper two-thirds of forewings blackish-fuscous, excepting a wedge-shaped streak of ground color along termen; markings of upper side reproduced; cilia as above. Hindwings with 5 black, white-centred spots; first large, in cell near posterior extremity; second, third, and fourth moderate, arranged in a curved series at two-thirds from base, between veins 1 and 4; fifth small, obscure, at about two-thirds from base, between veins 6 and 7; inner margin broadly pale yellowish; cilia dull orange.

Allied to the preceding, but apart from its much smaller size it can be chiefly distinguished from that species by the orange band of hindwings being divided into spots by intervening veins, whilst in *Symmomus* it is entire. It also differs by the fewer number of spots on under side of hindwings, which in *Symmomus* are 8 in number. In the present species there are but 5. Most authors quote *eliena*, Hew., as a synonym, but it is just possible in error, as we possess an insect certainly allied to *iacchus*, but quite distinct, but not in a fit condition for identification. Hewitson's description indicates a differently colored insect to *iacchus*.

Larvæ and pupæ are similar to *Symmomus* in appearance and habits. Feed on *Xerotes multiflora*, R. Br. (*Brownii*, F. v. M.), *Graminaceæ*; the imago are not uncommon on *Leptospermum* blossoms (*R. Illidge*).

Frankston, Macedon, Gisborne (*Lyell*), and Ocean Grange (*Wise*), Victoria; Waverley and Como, New South Wales; Duaringa, Brisbane, and Mackay, Queensland; Hobart and Deloraine, Tasmania; eleven specimens from October to January, most common in December.

43. Trapezites croites, Hew.

(*Cyclopides croites*, Hew., Ex. Butt., v., fig. 14, 1874; *Astictopterus croites*, Misk., Ann. Queensland Mus., 78, 1891.)

Female, about 25 mm. Forewings dark fuscous, with yellow hairs towards base; an oblique yellow band before middle, not reaching costa or dorsum, posterior edge with double prominence above middle; a transverse-oblong yellow spot beneath costa at two-thirds, another beyond this between veins 4 and 6, and an irregular band at two-thirds from vein 4 to near dorsum; cilia pale yellowish, spotted with dark fuscous. Hindwings dark fuscous, with a large irregular well-defined yellow patch in disc; cilia as in forewings. Under side of forewings as above, but with ochreous-whitish apical patch. Hindwings fuscous, almost wholly suffused with ochreous-whitish; discal patch and a dorsal streak dilated to tornus, cream color.

The specimen being a female, the genus is doubtful. Described from the type which is probably unique, in British Museum.

Western Australia.

44. Trapezites maheta, Hew.

Male. *Hesperia maheta*, Hew., Ann. N. H. (4), xix., p. 80, 1877; *Trapezites iacchus*, Misk. (*nec.* Hew.), Ann. Queensland Mus., 78, 1891.)

Male and female, 30-38 mm. Head, palpi, thorax, and abdomen dark fuscous, thorax and abdomen mixed with ochreous hairs, whitish beneath, antennæ dark fuscous, annulated with white beneath, club ochreous-whitish, apical half reddish beneath. Legs reddish fuscous. Forewings elongate-triangular, costa gently arched, termen gently bowed, oblique, faintly sinuate above anal angle; dark fuscous, with golden reflections; basal hairs yellowish, a yellowish sub-costal streak, suffused, from base to before middle; markings golden, somewhat hyaline; an irregular quadrate spot in posterior of cell, anterior edge constricted above middle, causing lower half to project somewhat, posterior edge faintly sinuate; a small somewhat quadrate spot considerably beyond, lying between veins 3 and 4 near base; a large cartridge-shaped spot lying just below, anterior edge from beyond middle of cellular spot, posterior edge to below middle of quadrate spot; an oblique transverse row of 3 somewhat roundish sub-costal spots at two-thirds from base; a somewhat moderate pentagonal spot of whitish-ochreous, below anterior edge of cartridge-shaped spot; inner margin narrowly yellow from base to beyond middle; cilia dark fuscous. Hindwings with termen rounded, somewhat prominent at anal angle; dark fuscous, somewhat purplish tinged; basal and inner marginal hairs long, yellowish-green; a mode-

rate, broad, transverse post-median band of yellow, at two-thirds from base, bounded by veins 1 to 6, edges more or less emarginate; cilia whitish suffusedly barred with fuscous at extremities of veins. Under side of both wings reddish-ochreous, somewhat tinged with flesh color; markings of upper side reproduced in pale yellow-whitish; upper margin of cell more or less yellowish, dorsal two-thirds of wing, excepting middle third of termen fuscous. Hindwings with 7 silvery-metallic spots, edged with fuscous; first largest, lying at base of cell, irregular-quadrate; second, somewhat pyriform, parallel and anterior to first; third moderate, at two-thirds from base, lying between veins 1 and 2; fourth small, immediately beyond; fifth smallest, just beyond fourth; sixth small, elongate, at two-thirds from base, lying between veins 6 and 7, and surmounted by a small fuscous dot; 2 very small spots parallel to fifth; yellow band of upper side somewhat reproduced in fleshy-ochreous; inner margin and anal angle dark fuscous; cilia as above.

This species stands in some collections as *Phigalia*, Hew., and although superficially somewhat similar it differs principally from that species by the color and markings of under side of hindwings, the color of *Maheta* being fleshy, whilst in *Phigalia* it is whitish, with a lilacine tinge. The silvery markings of under side of hindwings of male are a good distinction; the markings of upper side of forewings are much more abbreviated than in *Phigalia*; the base of wing is very scantily clothed with hairs; in *Phigalia* they are dense. The orange band of hindwings is narrower and extends much nearer to inner margin than in the other species mentioned. It is just possible that the insect figured on page 119, "Victorian Butterflies," is intended for the male of *Maheta*, although it is named *Phigalia*.

Brisbane and Mackay, Queensland; Waverley and Bathurst, New South Wales; five specimens from December to April.

45. Trapezites lutea, Tepp.

(*Hesperilla lutea*, Tepp., Trans. Roy. Soc., S.A., iv., p. 33, t. 2, f. 6, 1877; *Trapezites petalia*, Misk. (*nec.* Tepp.), Ann. Queensland Mus., 79, 1891.)

Male and female, 30-40 mm. Head, thorax, palpi, and abdomen dark fuscous, clothed with greenish yellow hairs, beneath yellowish-white. Antennæ dark fuscous, annulated beneath with white, club yellowish-white beneath, apical half reddish. Legs yellowish-white. Forewings elongate-triangular, costa

gently arched, termen gently bowed, oblique; ochreous-fuscous, golden tinged; basal two-thirds of wing clothed with short, dense, greenish-yellow hairs; markings pale yellow, opaque; an irregularly shaped spot in posterior end of cell; a second considerably beyond, hardly below; a much larger somewhat roundish spot obliquely before and below second; a fourth somewhat suffused, considerably before and below third; an oblique transverse series of 3 somewhat ovate sub-costal spots at two-thirds from base, median largest; cilia dark fuscous, becoming whitish at tips and around anal angle. Hindwings with termen rounded, color as in forewings; a large patch of long yellowish-green hairs from base along inner margin, occupying two-thirds of wing, on posterior extremity between inner margin and vein 4, the hairs appear to form 3 elongate streaks, separated by intervening veins; an elongate-quadrate patch of pale yellow at two-thirds from base, parallel to upper elongate streak of hair; cilia pale yellowish-white. Under side of both wings yellow; markings of upper side of forewings reproduced in pale yellowish-white, excepting sub-costal spots, which are hardly traceable; dorsal two-thirds of wing dark fuscous, excepting median third of termen; cilia whitish. Hindwings with a moderately large silvery-white roundish spot at end of cell, edged with black; cilia as in forewings.

Not unlike *Petalia*, Hew., but the preponderance of yellow above and below affords a ready test for recognition.

Stonyfell and Port Lincoln, South Australia; two specimens in November; also from Duaringa, Queensland; and Hobart, Tasmania.

46. Trapezites argenteo-ornata, Hew.

(*Cyclopides argenteo-ornatus*, Hew., Desc. Hesp., p. 41, n. 4, 1868; Ex. Butt., v., Cyc. and Hesp., fig. 18, 19, 1874; *Astictopterus argenteo-ornatus*, Misk., Ann. Queensland Mus., p. 79, 1891.)

Male and female, 30-36 mm. Head, antennæ, thorax, and abdomen dark golden-fuscous, post-orbital rims white, antennæ spotted with white beneath, club blackish, apex crimson, thorax and abdomen clothed with yellowish hairs. Palpi yellowish-white. Legs ochreous-white. Forewings elongate, triangular, costa slightly arched at base, thence straight, termen oblique, faintly rounded; dark fuscous; basal hairs dense, appressed, orange-ferruginous; markings yellowish-orange; a moderate, in male small, irregular quadrate spot in posterior end of cell; a second, quadrate, midway between first spot and termen; a third, similar, below and considerably before second;

a fourth, largest, considerably above inner margin in middle; an oblique transverse series of 3 quadrate sub-costal spots at two-thirds from base; cilia fuscous, chequered with whitish Hindwings with termen rounded, hardly prominent at apex; color as in forewings; basal and inner marginal hairs golden-ochreous; an elongate bright orange patch below middle of wing, nearer to costa than in inner margin; cilia as in forewings, but more whitish, especially round anal angle. Under side of forewings dark fuscous; costa with a moderately thick streak of yellowish, from base to apex, becoming blotch-like at apex and upper half of termen; markings of upper side reproduced, sub-costal spots almost white; cilia as above. Hindwings beneath fuscous-yellowish; markings metallic-silvery, edged with blackish; yellow post-median patch reproduced, but color yellow; a narrow elongate streak below costa, close to base; a second, similar, but smaller, below costa in middle; a third, somewhat diamond-shaped below costa before apex; a fourth in cell, elongate, narrowed, and slightly curved on upper third; a fifth, elongate, lying on vein 1 at one-third from base; a transverse row of 4 roundish spots at two-thirds from base, commencing at vein 1 and ending at lower extremity of yellow patch; inner margin broadly dull yellowish; cilia as in forewings.

Exceptionally distinct by the elongate silvery-metallic markings on under side of hindwings.

Perth and Fremantle, Western Australia; in October and November.

47. Trapezites sphenosema, n. sp.

Female, 34 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark fuscous, palpi beneath ochreous-whitish, antennæ annulated with whitish. Head and thorax clothed with golden-ochreous hairs, abdominal margins dull whitish. Forewings elongate-triangular, termen gently bowed, oblique; dark fuscous; basal half of wing clothed with short golden-ochreous hairs; markings obscure, dull ochreous; a small double spot in posterior extremity of cell; a second at base of veins 3 and 4; a third immediately below second, and an oblique transverse series of three sub-apical ones; cilia ochreous. Hindwings with termen rounded; color and basal hairs as in forewings, but hairs longer and extended along dorsum; cilia as in forewings. Underside: Forewings ochreous; a very large cuneiform black patch occupying upper five-sixths of wing, its apex directed to base. Hindwings ochreous-yellowish; a faint reddish spot in posterior extremity of cell; a faint transverse

post-median series of similar but smaller spots; cilia pale ochreous.

In the absence of the male the correct generic position cannot be assured, but in all probability it is rightly referred.

The curious wedge-shaped mark on underside of forewings is distinctive.

Perth, Western Australia; one specimen in November. We have seen others from the same locality.

48. Trapezites paraphaes, n. sp.

Female, 25 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark fuscous, head and thorax clothed with moderately long yellowish hairs, antennæ spotted with white beneath, palpi whitish beneath. Forewings elongate-triangular, termen gently bowed, oblique; dark fuscous, with ochreous markings; basal hairs ochreous; costal edge ochreous; a small quadrate spot in posterior extremity of cell; a second, similar, lying at base of veins 3 and 4; a third immediately below second, and a fourth resting on vein 1 at two-thirds from base; an oblique transverse series of three sub-apical spots, upper smallest; cilia ochreous. Hindwings with termen rounded; color cilia and basal hairs as in forewings, but basal hairs more dense and continued along dorsum. Under side: Forewings ochreous, markings of upper side, except spot on vein 1 reproduced; absent in some specimens; a large cuneiform black patch occupying upper five-sixths of wing, apex directed to base. Hindwings ochreous, somewhat tinged with reddish; two series (supra-median and sub-median) of obscure dull reddish spots; cilia of both wings as above.

Closely allied to the preceding, differing in its smaller size, coloring, and different shaped wings. The descriptions of this and the preceding read much alike, but the insects when placed side by side are quite distinct in appearance and easily separable.

Perth, Western Australia; one specimen received from Mr. Reid, taken in November. Mr. G. A. Waterhouse has a male specimen from King George's Sound. It differs only in the absence of spots on under side of forewings.

49. Trapezites gracilis, Tepp.

(*Pamphila gracilis*, Tepp., Trans. Roy. Soc., S.A., iv., 34, t. 2, fig. 7, 1881.)

Male and female, 26-32 mm. Head, palpi, thorax, and abdomen dark fuscous, palpi and thorax clothed with greenish-

yellow hairs, abdominal segments narrowly whitish. Legs reddish fuscous. Antennæ dark fuscous, annulated with white, club dull reddish beneath. Forewings elongate-triangular, costa slightly arched at base, termen slightly bowed, oblique; dark golden-fuscous, with white markings; a somewhat reniform spot at end of cell; an outwardly curved series of five quadrate sub-costal spots, from beneath costa at two-thirds, curved round to meet another series of four similar spots which terminate above inner margin at two-thirds, fifth spot of upper series smallest, second spot of lower series largest; cilia fuscous, chequered with white. Hindwings with termen rounded; color and cilia as in forewings; basal and inner marginal hairs golden-fuscous. Under side of forewings dark fuscous, excepting a moderately broad streak of reddish-ochreous along costa and apical third of termen; markings of upper side not wholly reproduced, but in male all markings reproduced, excepting lower 2 of second series of spots; spots of first series white, accompanied by a parallel series of 4 triangular white spots near termen, anteriorly blackish edged; the last-mentioned series of spots are also visible in female; cellular and other markings dull ochreous, hardly traceable in female; cilia as above. Underside of hindwings fulvous; markings white; an elongate cuneiform spot, from base to beyond middle of cell, dilated posteriorly; a narrow elongate spot lying above and beyond posterior extremity of first; a third, small, considerably beyond second; a fourth, very large, quadrate, immediately below third, with an elongate projection on upper posterior edge; a fifth, quadrate, lying between veins 1 and 2; irregularly indented above and below; a curved series of 5 (sometimes 6) parallel spots, between veins 1 and 6, indented above and below; fourth spot twice indented and sometimes separated into 2 spots; all markings more or less edged with dark fuscous, excepting posterior edges of last-mentioned spots; cilia as in forewings.

Easily distinguished by the markings of forewings and separation of all markings of under side of hindwings. It may be identical with *Astictopterus cynone*, Hew. Hewitson's figure (Ex. Butt., v., f. 14, 1874) approaches it so closely as to admit of little doubt.

Semaphore and Henley Beach, South Australia; Gunbower, Victoria; several specimens taken in June and December.

50. Trapezites phigalia, Hew.

(*Hesperilla phigalia*, Hew., Desc. Hesp., p. 32, n. 23, 1868; Herr Schaff., Stett. Ent. Zeit., t. 3, fig. 15, 1869; *Telesto phlœa*,

Plotz., Stett. Ent. Zeit., xlv., p. 378 (? 1884); *Trapezites phillyra*, Misk., Proc. Roy. Soc., Queensland, p. 153, 1889; female, A. and S., Vict. Butt., p. 119, 1893.)

Male and female, 34-40 mm. Head, palpi, thorax, and abdomen dark fuscous, densely clothed with long greenish-yellow hairs, beneath whitish. Legs fuscous-whitish, all coxæ white. Antennæ fuscous, annulated with white above and below, club beneath whitish, apical half reddish. Forewings elongate-triangular, costa slightly arched at base, faintly sinuate in middle, termen hardly bowed, oblique; dark fuscous-golden; markings orange; basal half of wing more or less clothed with short dense orange-yellow hairs; an irregularly quadrate spot in posterior end of cell, deeply indented anteriorly and posteriorly, ground color on either side becoming black; a large, in male small, elongate quadrate spot, below first-mentioned spot, surmounted at its posterior apical extremity by a moderate quadrate spot; a very small spot below second spot, near anterior extremity; an irregularly shaped yellowish, somewhat opaque spot, above inner margin in middle, in female almost touching lower edge of second spot; an oblique transverse series of 3 roundish, white, subcostal spots, at two-thirds from base, median smallest; inner margin narrowly edged from base to beyond middle with short orange hairs; cilia dull whitish, chequered with fuscous, basal half wholly fuscous. Hindwings with color as in forewings, termen faintly waved, apex and anal angle somewhat prominent, more especially in male, base and inner margin broadly clothed with long orange hairs; median band, between veins 2 and 6, twice dentate below and once above, posterior half much dilated; cilia as in forewings. Underside of both wings fleshy-whitish, somewhat lilacine tinged; three subcostal spots reproduced as above, accompanied below and beyond by two small fuscous dots; cell of forewings orange, becoming confluent with quadrate spot of upperside, in female containing a suffused blackish quadrate spot in middle, in male much smaller and somewhat pointed; an irregularly shaped patch of blackish beyond end of cell; other spots of upperside reproduced, somewhat confluent and edged posteriorly by 3 elongate-quadrate spots, separated by intervening veins; a somewhat cuneiform blackish spot just below blackish spot in middle of cell; cilia dull whitish, chequered obscurely with fuscous. Hindwings marked with a series of small, roundish fuscous rings filled with ground color; first roundish, between veins 7 and 8, at one-third from base; second irregular in cell, diamond shaped

near posterior extremity; third, irregular shaped, between veins 7 and 8 at two-thirds from base; fourth, below and beyond, between veins 6 and 7; fifth, sixth, seventh, eighth, and ninth forming a slightly curved transverse row at two-thirds from base, between veins 1 and 6, posterior pair much smaller, ninth sometimes with an adjacent fuscous fleck; tenth, small, considerably above ninth, accompanied by a similar fleck; cilia as in forewings, but less chequered.

The larvæ, which is very similar in appearance to *Iacchus*, feed on *Cladium*.

Not unlike *Maheta*, Hew., but the differences between the two species will be found explained at the footnote in reference to that species.

Gisborne, Macedon, Toora, Dutson, and Wandin, Victoria; Sydney and Katoomba, New South Wales; Rockhampton (*Miskin*), Ithaca Creek (*Illidge*), Queensland; Blackwood and Highbury, South Australia; several specimens from September to March, November being the month when the species is commonest.

51. Trapezites tasmanicus, Misk.

(*Hesperilla tasmanicus*, Misk., female, Proc. Roy. Soc., Queensland, p. 149; *Telesto comma*, Kirby, Ann. Mag. N.H., vi., p. 436, 1893.)

Male and female, 26-28 mm. Head, palpi, thorax, and abdomen dark fuscous, more or less clothed with greenish-yellow hairs, beneath whitish. Antennæ dark fuscous, annulated with white, club reddish beneath. Legs whitish. Forewings elongate-triangular, costa somewhat sinuate in middle, termen faintly rounded, oblique; dark golden fuscous; basal third of wing clothed with short yellowish hairs; markings pale ochreous-white; a large irregular-shaped spot in posterior end of cell, constricted above and becoming somewhat elongate on lower edge; an elongate-quadrate spot midway between last-mentioned spot and termen, surmounted by a small roundish spot; an oblique transverse series of 3 small quadrate sub-costal spots at two-thirds from base, median smallest; indications of 2 small yellowish spots below cellular spot; cilia dull whitish, chequered with fuscous. Hindwings with termen rounded; color as in forewings; basal and inner marginal areas clothed with moderately long yellowish hairs; 2, rarely 3, conspicuous, moderate, roundish whitish spots below middle of wing, only separated by intervening veins. Under side of forewings dark fuscous; a large grey-whitish triangular patch, extending from 3 sub-costal spots to apex and continued

middle of termen; cell with a few orange hairs; markings of upper side reproduced, excepting yellowish spots; cellular spot edged with blackish; inner margin narrowly dull-whitish; cilia whitish, chequered with black. Hindwings fuscous, wholly irrorated with grey-whitish scales, excepting 2 transverse irregular rows of small fuscous dots, at one-third and two-thirds from base; spots of upper side reproduced and edged with blackish; cilia as in forewings.

Distinct by the markings on hindwings; a similar character occurs in *Telesto croceus*, Misk., but the smaller size, absence of stigma in male, and additional spots on forewings, easily separate it from that species.

Hobart, Tasmania; Gisborne, Healesville, Lilydale, and Gembrook district, Victoria; four specimens, from November to January.

8. *Exometæca, Meyr.

Club of antennæ elongate, pointed, bent. Palpi subporrect, terminal joint moderately long, pointed. Posterior tibiæ with all spurs. Forewings of male without stigma; 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings; 5 present, somewhat nearer 6 at base.

Contains only the single species, which has the facies of some species of *Trapezites*. The presence of vein 5 in hindwings is, however, a distinctive character.

52. Exometæca nycteris, Meyr.

(Proc. Linn. Soc., N.S.W., ser. ii., p. 833, 1887).

Male, 27 mm. Head, palpi, thorax, and abdomen yellow-ochreous, palpi whitish on lower half, antennæ grey, club carmine above. Forewings elongate, triangular, costa nearly straight, termen hardly rounded, somewhat oblique; ochreous-fuscous, towards costa posteriorly tinged with darker fuscous; costal edge fuscous; a small dark fuscous longitudinal spot at base, near inner margin; a dark fuscous transverse linear mark in disc above middle; a cloudy fuscous dot beneath vein 2 before middle; 2 very small white spots, margined with dark fuscous, placed transversely in disc at two-thirds, upper between veins 5 and 4 at base; 2 dark fuscous dots placed transversely beneath lower of these; 3 very small white adjacent spots placed transversely beneath costa at three-fourths, margined posteriorly by a dark fuscous line, somewhat produced beneath; cilia fuscous, mixed with ochreous, becoming ochreous-yellowish towards anal angle. Hindwings with termen rounded; color as forewings, base more yellowish, costal

third wholly dark fuscous; a cloudy fuscous transverse mark in disc before middle; a curved transverse row of 5 very small cloudy dark fuscous spots at two-thirds, extending from near costa to below middle; cilia fuscous, mixed with ochreous. Under side of forewings fuscous, dorsal third pale whitish ochreous; white spots as above; a whitish transverse discal mark, margined with dark fuscous; a cloudy purplish blotch at three-fourths, reaching from costa two-thirds across wing, and enveloping the white spots. Hindwings beneath rather light fuscous, towards anal angle somewhat suffused with ochreous-whitish; a small, somewhat darker crescentic discal spot before middle; four very small darker fuscous spots arranged in a straight transverse series at two-thirds, one being above and 3 below middle.

Sits with wings projecting perpendicularly forward (as in a bat), so as to enclose the legs (*Meyrick*).

Albany, West Australia; one specimen, in December.

9. Apaustus, Hüb.

Club of antennæ rather short, hollowed, with short, abruptly narrowed point. Palpi ascending, terminal joint moderately long, slender, erect, pointed. Posterior tibiæ with all spurs. Forewings in male sometimes with stigma; 5 approximated to 4 towards base. Hindwings: 5 obsolete.

A genus of moderate extent, extending to Oriental region. The curious form of the antennæ is characteristic of the genus.

1. Stigma of forewings absent	3	
Stigma of forewings present	2	
2. Hindwings beneath ochreous-fuscous, with a white sub-median band ...	53	*Papyria.*
Hindwings beneath ochreous, sub-median band, yellow	54	*Flavovittata*
3. Hindwings beneath bright ochreous, without markings, or faintly indicated	55	*Lascivia.*
Hindwings beneath, light yellow to yellowish orange, markings of upper side moderately reproduced...	56	*Sunias.*

53. Apaustus papyria, Boisd.

(*Hesperilla papyria*, Boisd., Voy. Astr. Lep., p. 166, 1832; *Taractrocera celæno*, Cox. Entomologist, iv., 402, 1873; *H. fumosa*, Guest, Trans. Roy. Soc., S.A., v., p. 37, 1882; *Apaustus minimus*, Misk., Proc. R. Soc., Queensland, p. 153, 1889; *Tarac-*

trocera papyria, A. and S., Vict. Butt., p. 129, 1893; *Apaustus alix*, Plotz., Stett. Ent. Zeit., p. 165, 1885.)

Male and female, 18-24 mm. Head, palpi, thorax, and abdomen dark fuscous, palpi beneath yellowish, thorax and abdomen clothed with yellowish hairs, beneath white, abdomen posteriorly sometimes ringed with whitish. Antennæ fuscous, spotted with white. Legs whitish. Forewings elongate, triangular, costa faintly sinuate in middle, termen gently bowed, oblique; dark fuscous, with orange-yellow markings; a narrow costal streak from base to before middle; a streak along lower margin of cell, continued right around to posterior extremity, where it becomes dilated and indented on either side, finely attenuated towards base; a narrow streak along inner margin from base to two-thirds, anteriorly attenuated and edged above throughout by a narrow dark fuscous streak; an oblique transverse row of somewhat quadrate, more or less connected, spots from just beneath costa at two-thirds, and curved round to two-thirds of inner margin, the 2 above middle placed considerably beyond the 3 sub-costal ones; in the male the lower two-thirds of series of spots become confluent, and appear as a thick streak, which is edged anteriorly by a narrow black stigma throughout; cilia dull whitish-fuscous. Hindwings with termen faintly sinuate in middle; color as in forewings; basal and inner marginal hairs yellowish; markings orange; a narrow elongate in cell near base; a moderate transverse series of irregularly edged quadrate confluent spots beyond middle of wing, not reaching either margin; cilia as in forewings. Under side of forewings dark fuscous; costa throughout and upper two-thirds of termen broadly orange yellow; markings of upper side, except stigma, reproduced, becoming whitish-ochreous; a sub-terminal streak of light fuscous. Hindwings dark fuscous, irrorated throughout with yellowish scales; markings of upper side reproduced, but color whitish; cilia as above.

Somewhat allied to *Lascivia*, Rosen, but immediately distinguished from that species by the markings of under side of hindwings, which in *Lascivia* are absent Watson states (P.Z.S., 1893) that this is the only species possessing a stigma in male. This is erroneous, as *Flavovittata*, Latr., which is allied to *Papyria*, has a similar character, and we have two undetermined species of similar structure. The species described by Cox as *Celæno* undoubtedly refers to a slight variety of the present species, which does vary, but not to any appreciable extent.

The larvæ, which is of the usual yellowish-green Hesperid type, feed on *Imperata arundinacea*. It is similar in habits and appearance to *Lascivia* in both larval and pupal stages. The pupa is somewhat similar, but rather lighter fuscous, the posterior segments are covered with short bristles, above and below, the head has the anterior portion very rugose.

The imago frequent the blossoms of lucern (*Medicago sp.*).

Hobart, Tasmania; Parkside, Highbury, and Mount Lofty range, South Australia; Sydney and Como, New South Wales; Melbourne, Gisborne, &c., Victoria; Western Australia (*Miskin*); several specimens from November to March.

54. Apaustus flavovittata, Latr.

(*Hesperilla flavovittata*, Latr., Enc. Meth., ix., p. 768, n. 114, 1819; *H. bifasciata*, Misk. (*nec* Tepp.), Ann., Queensland Mus., p. 81, 1891).

Male, 20 mm. Differs only from *Papyria* as follows: All the white markings of under side are changed to ochreous-yellow, and the band of hindwings is much shorter.

Perth, Western Australia; two specimens in November.

55. Apaustus lascivia, Rosen.

(*Pamphila lascivia*, Rosen., Ann. N.H. (5), xvi., p. 378, t. 11, fig. 1, 1885; *Apaustus lascivia*, A. and S., Vict. Butt., p. 113, 1893.)

Male and female, 17-25 mm. Head, palpi, thorax, and abdomen dark fuscous, palpi beneath yellowish, thorax and abdomen densely clothed with long yellowish hairs. Antennæ fuscous, spotted beneath with yellowish, club blackish, basal two-thirds yellowish. Legs whitish, tibiæ and tarsi yellowish. Forewings elongate, triangular, costa nearly straight, termen obliquely rounded; dark fuscous; basal half of wing in male more or less minutely irrorated with yellowish, in the female the irroration extends along costa to apex; markings orange; a moderately thick streak along costa from base to middle, posteriorly cut by intervening veins; an elongate streak along lower margin of cell and continued right around posterior extremity, anteriorly attenuated; an oblique transverse row of 5 or 6 (generally 5) more or less quadrate spots, in male separated by veins, in female inclining to coalesce, from considerably below apex to above two-thirds of inner margin; a suffused spot below costa between extremity of costal streak and apex of transverse row; cilia fuscous-whitish. Hindwings with termen rounded, faintly sinuate before anal angle; color of

wing and markings as in forewings; basal and inner marginal hairs long, yellowish; a nearly straight row of 4 irregular cartridge shaped spots below middle, between veins 2 and 6; cilia as in forewings, but more orange. Under side of forewings orange-yellow, dorsal two-thirds black; markings of cell and lower three spots of transverse series reproduced; cilia as above. Hindwings and cilia light yellow-ochreous, without markings.

Distinct by the absence of markings on underside of hindwings.

The larvæ feed on *Imperata arundinacea* (*Graminaceæ*). The larvæ when full grown are one inch in length, pale green; the two anterior segments are smallest. When half-grown the head is totally black; when full-grown light brown, with the usual black V-shaped mark and black ring round the head. The larvæ when full-grown constructs a sheath similar to the one it feeds in; closes up both ends and casts the skin. The pupa is at first pale olive-green, gradually becoming light brown, and is about half an inch long. The pupal state is ten to twelve days. Each larvæ conceals itself by uniting the edges so as to form a sheath where it remains, when feeding, which is usually at night; it protrudes its head just outside the sheath and nibbles the edges of it; when one sheath is devoured a second is formed.

Fernshaw, Oakleigh, and Murrumbeena, Victoria; Sydney and Balmoral, New South Wales; Cairns (*Miskin*), Mackay (*Turner*), Queensland; Hobart, Tasmania; from November to February.

56. Apaustus sunias, Feld.

(*Pamphila sunias*, Feld., Sitzb. Ak. Wiss. Wien. Math. Nat. Cl., xl., p. 462; n. 54, 1860; *Ocybadistes walkeri*, Heron., Ann., Nat. Hist. (6), xiv., p. 106; *Ancyloxypha agraulia*, Hew., Desc. Hesp., p. 45, n. 3, 1868.)

Male and female, 17-24 mm. Head, palpi, thorax, and abdomen blackish, densely clothed with orange hairs, abdomen latterally yellow, beneath whitish. Antennæ blackish annulated with yellowish, apex of club black. Legs yellowish. Forewings elongate, triangular, costa nearly straight, termen obliquely rounded, less rounded in male; blackish-fuscous, with bright orange markings; a broad streak from base to just before two-thirds of costa, filling up whole of cell, except a narrow streak of ground color; an irregular triangular spot immediately beneath costa at five-sixths, anterior edge becoming confluent with costal patch in male; an oblique trans-

verse row of 4 spots; first immediately below and beyond triangular spot, irregular quadrate, anterior edge touching previous spot; second and third elongate, in male irregular-quadrate; fourth, irregular, in female constricted above middle; a narrow streak along inner margin from near base to two-thirds, above which is a suffused elongate streak; cilia dull ochreous, basal half blackish, round anal angle orange. Hindwings with termen faintly sinuate above anal angle; color as in forewings, markings orange; basal and inner marginal hairs orange; an irregular spot in posterior end of cell; a moderately broad curved transverse band below middle of wing, edges irregular dentate; a small spot above apical portion of band, in male becoming confluent with it; cilia orange. Under side of forewings orange-yellow, dorsal two-thirds of wing black, except towards termen; 3 lower spots of upper side reproduced; cilia as above. Hindwings beneath with color somewhat yellower; an obscure triangular patch of dull orange lying above inner margin, attenuated towards base; cilia as above.

Differs from its congeners by its brilliant coloring and broader markings.

The larvæ feed on *Cynodon dactylon* (Couch Grass), also *Imperata arundinacea*. According to Olliff (Ann. M.N.H., p. 36, 1888) they are pale green, darker at sides, considerably narrowed posteriorly, head dark brown with a white V-shaped mark in front; the lateral line very indistinct. Full fed larvæ 11 lines in length. Pupa grey, transparent. Fed on Couch Grass, at the roots of which it pupated. The imago appeared early in April.

Elwes and Edwards (Rev. Or. Hesp., p. 255, 1896), doubtfully query this species as synonymic with *Telicota dara*, Koll., an Asiatic species.

We once took this species in abundance at the Botanic Gardens, Adelaide, flying over the blossoms of Globe amaranth (*Gomphrena*) in February; also occurs at Sydney, Katoomba, Bathurst, &c., N.S. Wales; Gisborne, Melbourne, &c., Victoria; Brisbane to Cooktown, Queensland; Port Darwin; from November to April.

10. Telicota, Moore.

Club of antennæ elongate, apex pointed, bent. Palpi ascending, terminal joint short, pointed, erect. Posterior tibiæ with all spurs. Forewings in male with stigma; 3 in male approximated to 2, remote from 4, 5 approximated to 4 towards base. Hindwings: 5 obsolete.

An Indo-Malayan genus of moderate extent; two of the undermentioned species are found outside of Australia. In this and the following genus great care is necessary to separate the species, the markings in many instances being extremely similar.

1. Forewings rather short, stigma present, markings bright orange-yellow, cell with streak of ground color... 57 *Marnas*, male.
   Forewings rather long, markings reddish orange, anterior two-thirds of cell, filled in with ground color 3
2. Posterior edges of transverse band of forewings continued as fine streaks along veins to termen, stigma present ... ... 59 *Augias*, male.
   Posterior edges of transverse band of forewings, not or hardly reaching termen; stigma present ... 60 *Bambusæ*, male
3. Spot in cell of hindwings well marked 58 *Ohara*, female.
   Spot in cell of hindwings not well marked 1

57. Telicota marnas, Feld.

(*Pamphila marnas*, Feld., Sitzb. A.K. Wiss. Wien. Math. Nat. Cl., xl., p. 462, n. 53, 1860; *Elwes and Edw.*, Rev. Orient. Hesp., p. 256, 1897).

Male and Female, 24-30 mm. Head, palpi, thorax, and abdomen blackish, mixed with greenish ochreous hairs, abdominal segments orange, palpi beneath yellow, thorax and abdomen beneath orange. Legs dull orange. Antennæ blackish, spotted beneath with orange, club beneath orange, apical third black. Forewings elongate, triangular, rather short, costa arched at base, faintly sinuate in middle, termen rounded, oblique; blackish-fuscous, with orange markings; a rather thick costal streak from base to middle, leaving extreme costal edge blackish; cell filled up with orange, except at posterior extremity, which is blackish and causes the orange coloring to appear rounded above and below; a narrow streak of ground color in middle of cell, attenuated anteriorly; an oblique transverse series of 3 subcostal spots at two-thirds from base; a very small (in some specimens moderate), spot considerably beyond and below subcostal spots between veins 4 and 5; a smaller spot obliquely above and touching last, absent in

some specimens; three obliquley placed spots; first cartridge-shaped, between veins 3 and 4, below and before the small spot; second similar, immediately below, between veins 2 and 3; third irregular, largest, strongly excised on either side in middle; stigma blackish, narrow, oblique anteriorly parallel to 3 previous spots; a narrow suffused streak along vein 1 from stigma to base; a moderate streak along inner margin from beneath irregular spot to base; cilia dull ochreous, at base fuscous, round anal angle orange. Hindwings with termen faintly sinuate above anal angle; color as in forewings, basal and inner marginal hairs orange; markings orange; a moderately broad irregular-edged median transverse band, between veins 1 and 6, continued as a streak along vein 1 to termen, band narrowed posteriorly, veins 3 and 4 obscurely outlined with fuscous on band; a small spot, sometimes absent, above apex of band; cilia orange-yellow, at base fuscous. Under side of forewing fulvous, dorsal two-thirds, except median third of termen blackish; markings of upper side, except stigma, reproduced; lower half of cell becoming black, except a median orange spot; cilia as above. Hindwings beneath yellowish-orange, becoming broadly tawny around termen; markings of upper side somewhat obscurely reproduced, edged above and below by indistinct blackish lunules; an obscure patch of blackish scales above anal angle; cilia as above.

This species stands in some collections as *Olivescens*, Herr. Sch., but the figure of that species in Ent. Stett. Zeit. (p. 79, n. 60, t. 3 fig. 14., 1869) does not agree with the species under review, but denotes a species described further on. The occasional additional spot above apex of transverse band of forewings appears on both the Brisbane and New Guinea specimens, but the Brisbane specimen lacks additional spot above transverse band of hindwings. Our male specimens (17 in number) agree exactly with the description given in Elwes and Edwards, Rev. Or. Hesp., 256, 1897.

Sydney, New South Wales; Mackay, Brisbane, and Kuranda, Queensland; in October and December. Also from Ambonia and New Guinea.

58. Telicota ohara, Plotz.

(*Hesperilla ohara*, Plotz., Stett. Ent. Zeit., xliv., p. 227, 1883.)

Female, 36 mm. Head, palpi, thorax, and abdomen blackish, thorax and abdomen more or less clothed with orange hairs, beneath yellowish. Antennæ dark fuscous, annulated with

ochreous beneath, club ochreous, apical half reddish. Legs orange. Forewings elongate, triangular, costa gently arched, termen rounded, rather strongly oblique; dark fuscous, very minutely irrorated with orange; markings bright orange; a moderate streak from base along costa to near the 3 sub-costal spots; an oblique series of 3 subcostal spots immediately beyond, median smallest; 2 elongate, sometimes confluent spots in end of cell, lower anterior; an oblique transverse row of 5 spots; first very small, roundish, beyond lower subcostal spot between veins 5 and 6; second small, quadrate, just below; third moderately large, cartridge-shaped, just below second, between veins 3 and 4; fourth similar, larger, below third; fifth, largest, irregular, posteriorly excised in middle; a narrow streak from anterior edge of this along vein 1 to base; a moderate streak along inner margin from below fifth spot, finely attenuated on anterior half. Hindwings with termen faintly sinuate above anal angle; color as in forewings; markings bright orange; basal and inner marginal hairs yellowish; a roundish spot in end of cell; a transverse band somewhat below middle, cut by intersecting veins into four spots, first between veins 1 and 2, somewhat obscure, but more or less continued along vein 1 to termen; second and third cuneiform, parallel; fourth large, elongate-quadrate; cilia orange, at base blackish. Under side of both wings orange; dorsal two-thirds of forewings, except median third of termen, blackish; markings of upper side reproduced; subcostal and 2 upper spots of transverse band edged on either side with blackish points; inner marginal streak absent; cilia as above. Hindwings with markings of upper side obscurely reproduced and edged above and below with blackish lunules; a large patch of blackish extending from inner margin almost to vein 2, not reaching base; cilia orange.

The markings of this species are extremely similar to the female of preceding, but it differs by the more oblique transverse band of forewings, intense coloring and spot in cell of hindwings, besides being much less hairy at base of wings.

Mackay and Brisbane, Queensland; in December.

59. Telicota augias, Linn.

(*Papilo augias*, Linn., Syst. Nat., i., p. 794, 1767; *Telicota augias*, *Distant*, Rhop. Malay., p. 382, pl. xxxiv., f. 23, 1886; *Pamphila Krefftii*, Macleay, Proc. Ent. Soc., N.S.W., p. 54, n. 20, 1866.)

Male and Female, 26-32 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, antennæ spotted with yellowish

beneath, club yellow, apical half reddish, thorax and abdomen clothed with long yellowish hairs, beneath yellowish. Legs yellow mixed with fuscous. Forewings elongate, moderate, costa straight, termen gently bowed, olique; dark fuscous, with bright orange markings; a broad streak along costa from base to middle, limited by intervening veins; interneural spaces between posterior extremity of streak and apex filled in with orange, and continued along vein 7 as a narrow streak to apex; a cuneiform spot lying between base of veins 6 and 7; an outwardly oblique transverse series of 5 somewhat elongate-quadrate spots from above inner margin at two-thirds, between veins 1 and 6, upper smallest, excised posteriorly in middle; second smaller, immediately below; third and fourth and fifth similar, but larger, the whole five have the upper and lower edges continued as a fine streak nearly to termen; not in female; cell filled in with orange, in female narrowly black in middle to two-thirds; a large cuneiform spot just below cell, from base to stigma, not in female, but appears as a narrow streak along vein 1; a narrow streak along inner margin from base to two-thirds, separated from cuneiform spot by a streak of ground color; stigma moderately thick, oblique, somewhat dentate anteriorly, and sometimes broken into 3 spots, from vein 1 beyond middle to base of vein 4; greyish-fuscous, edged on either side with black; cilia fuscous, around anal angle orange. Hindwings with termen distinctly sinuate above anal angle; color as in forewings; basal hairs yellow; lower two-thirds of cell filled up with orange, only indicated by a moderate spot in female, a submedian transverse band of orange band from veins 1 to 6, intersected by veins, upper edge irregular, lower edge excised between veins and continued along vein 1 to termen; a very narrow streak lying just above vein 6, separated from transverse band by vein; cilia yellow, fuscous at base on upper two-thirds. Under side of forewings orange; dorsal two-thirds except median third of termen blackish; markings of upper side, except stigma, reproduced; subcostal and transverse spots edged posteriorly with blackish lunules; cilia as above. Hindwings beneath orange, greenish tinged; markings of upper side reproduced in orange and edged above and below with blackish disconnected lunules; inner marginal area finely irrorated with blackish.

Immediately known from the preceding by the broad stigma and continuation of transverse streaks along veins towards termen. The species has a fairly wide range, but the Australian specimens do not differ from those taken in Calcutta.

Larvæ full fed; 35 mm. Moderate, cylindrical, somewhat rugose, anal segment with a few shorty fuscous hairs. Head hardly smooth, blackish with usual V-shaped black mark, on either side of which is a broad streak of light fuscous. Body light yellowish-green, with a suffused yellowish spot on tenth segment, anal segment with a black spot on posterior extremity, and a black transverse spot on anterior edge, faintly produced on lower edge; dorsal moderate, well developed, deep green, spiracular ochreous-white; supra-spiracular deep green; sub-spiracular indistinct. Spiracles ill-defined; greenish. Full fed in November; feeds on *Imperata arundinacea* (*Graminaceæ*). The pupæ are cylindrical, and smooth. Head dark fuscous, forehead without projection.

Sydney, New South Wales; Brisbane to Cooktown, Queensland; several specimens from November to April. Also from India, Ceylon, Java, &c.

60. Telicota bambusæ, Mre.

(*Pamphila bambusæ*, Moore, P.Z.S., p. 691, t. 45, fig. 11, 1878; *Pamphila pythias*, Mab. Pet. Nov., ii., 234, 1878; *Telicota bambusæ*, Dist. Rhop. Malay., p. 382, n. 2, t. 35, fig. 12, 1882-6.)

Male and female, 35-40 mm. Head, palpi, antennæ, thorax, legs, and abdomen as in *Augias*. Forewings elongate-triangular, termen gently bowed, oblique; color, markings, and stigma as in *Augias*, excepting that the transverse band of five spots is more abbreviated and have only the lower edges continued towards termen, but not near reaching it. Hindwings with termen distinctly sinuate before anal angle; color, markings, and cilia as in *Augias*. Underside of both wings as in *Augias*, excepting that the color of hindwings is generally bright orange-yellow, and in the female before us all markings are obliterated and slightly greenish tinged.

This species is closely allied to *Augias*, but apart from its larger size and more brilliant coloring of under side it can easily be distinguished from that species by the abruptions of orange transverse band of forewings. This character is more pronounced in the Indian and Indo-Malayan specimens before us, those from Australia showing a greater tendency to be continued as a fine streak along veins to termen.

Sydney, New South Wales; Mackay, Townsville, and Brisbane, Queensland; in November and December; also from India and the Malay Archipelago.

11. Erynnis, Schranck.

Club of antennæ elongate, apex pointed, bent. Palpi ascending, terminal joint short, stout, conical, erect, posterior tibiæ with all spurs. Forewings in male sometimes with stigma; 3 approximated to 4, 5 approximated to 4 towards base. Hindwings with 5 obsolete.

An Indo-Malayan genus of moderate extent, differing chiefly from the preceding by the occasional absence of the stigma and approximation of veins 3 and 4 of forewings. The yellow and black species being similar in markings, a satisfactory tabulation is difficult. The following is the best we can contrive:

1. Wings blackish, without markings; cilia snow white ... 67 *Fuliginosa.*
   Wings blackish, markings dull orange; cilia fuscous-orange 6
2. Under side of hindwings greenish-tinged, with two transverse rows of blackish spots ... 62 *Palmarum*, male.
   Under side of hindwings blackish-fuscous, with one row of bluish spots 1
3. Forewings above without markings in cell, transverse band white... *Cæsina.*
   Forewings above with cell filled up with pale yellow 2
4. Forewings above without markings in cell, transverse band yellow ... ... 63 *Macleayi.*
   Forewings above with cell filled up with orange 5
5. Forewings above with cartridge-shaped spot joining apical spots and transverse band ... 64 *Sperthias*, male.
   Forewings above without such spot ... ... 65 *Olivescens*, female
6. Band of hindwings dull orange, moderately broad, rather broadly separated by intervening veins ... ... 66 *Ulama*, male.
   Band of hindwings bright orange, moderate, hardly separated by intervening veins 5

7. Wings above and below suffused with bright orange scales, markings hyaline, male without stigma ... ... 68 *Fulgida.*
   Wings above and below, moderately suffused with pale greenish - yellow, markings hyaline, male with very oblique whitish stigma ... 69 *Mathias.*
8. Forewings fuscous; markings bright orange, cell filled in with orange, except a median streak of ground color, median spots hyaline ... ... 61 *Angustula*, male
   Forewings blackish; cell without markings except a quadrate spot at posterior extremity, markings not hyaline ... 6
9. Hindwings beneath purplish, mixed with ferruginous, markings of upper side absent ... 4
   Hindwings beneath yellowish, tinged with fuscous, markings of upper side reproduced 5

61. Erynnis angustula, Herr-Sch.

(*Pamphila angustula*, Herr-Sch., Stett. Ent. Zeit., p. 79, n. 58, 1869.)

Male, 32 mm. Head, thorax, palpi, antennæ, and abdomen blackish, thorax and abdomen clothed with orange hairs, abdomen with ochreous segmental rings, antennæ spotted with yellowish beneath. Legs orange. Forewings elongate, triangular, termen obliquely rounded; dark fuscous, markings orange; stigma absent; a moderate streak along costa from base to beyond middle, accompanied at its posterior end by 3 fine interneural streaks of orange; a narrow streak along upper margin of cell; a similar streak along lower margin, somewhat bent up to nearly touch previous streak, leaving a streak of ground color in middle of cell; an oblique transverse series of 3 cartridge-shaped sub-costal spots at three-fourths from base; an elongate spot below resting on vein 4; an inwardly oblique transverse series of 3 spots; first cuneiform, partly hyaline, excavated posteriorly, lying between veins 3 and 4; second similar, just below; third below second, not hyaline, irregular,

excised in middle on either side; a narrow streak along inner margin, from beneath third spot to base, attenuated anteriorly; a similar short streak just above; cilia orange, more pronounced around anal angle. Hindwings with termen faintly sinuate before anal angle; color as in forewings; basal and inner marginal hairs orange; an orange spot in cell; a moderate transverse orange sub-median band, limited by veins 1 and 6, inclining to be continued along vein 1, but not reaching termen, edges of band somewhat crenulate, median portion with 3 hyaline spots, cilia as in forewings. Under side of forewings orange-fuscous, dorsal portion rather broadly blackish; markings of upper side reproduced; lower third of cell filled up black, leaving a spot of orange beyond middle; cilia as above. Hindwings orange, mixed with fuscous, markings and cilia of upper side reproduced.

Somewhat allied to *Marnas*, Feld., but the hyaline spots and absence of stigma readily separate it from that species.

Mackay, Queensland; one specimen. The type was taken in Fiji.

62. Erynnis palmarum, Moore.

(*Pamphila palmarum*, Moore, P.Z.S., 1878, p. 690, pl. xlv., fig. 6, 7, male and female; *Hesperia chrysozona*, Plotz., Ent. Stett. Zeit., xliv., p. 228, 1883; *Pamphila augiades*, Var., *bambusæ*, Staud, Iris., ii., pp. 144, 165, 1889; *Padraona chrysozona*, Semper, Schmett, Phillip., p. 301, pl. xlix., fig. 13, male, fig. 14 female, pl. B., fig. 11, larva (as *Telicota bambusæ*, 1892).

Male 40, mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, palpi beneath yellowish, club of antennæ beneath yellowish, apical half of club reddish, thorax and abdomen clothed with greenish-yellow hairs. Legs orange. Forewings elongate, triangular, costa gently arched towards base, faintly sinuate in middle, termen faintly rounded, oblique; blackish, with orange markings; basal hairs yellow; a moderate streak along costa from base to middle; two narrow streaks, posterior to this separated by veins; 3 elongate-cuneiform obliquely placed subcostal spots just beyond, posteriorly excised, and more or less continued as fine streaks along veins to costa and termen; cell filled up with orange; a series of 5 inwardly oblique transverse spots, excised anteriorly and posteriorly; first smallest, immediately below apex of third subcostal spot; second, third, fourth, and fifth gradually increasing in size, fifth largest, lower third continued as a streak along vein to

base; a moderate, posteriorly dilated, streak along inner margin from base to posterior extremity of fifth spot; cilia orange, blackish at base on upper two-thirds. Hindwings with termen rather strongly sinuate above anal angle, causing anal angle to appear prominent; basal and inner marginal hairs long, orange; color as in forewings; a moderate suffused orange patch in cell; a broad transverse orange submedian band, between veins 1 and 7, broadest anteriorly and then continued moderately along vein 1 throughout, edges of band more or less crenulate; cilia orange. Underside of forewings blackish; markings of upper side reproduced; subcostal and transverse series of spots edged posteriorly by a series of blackish spots, lower one becoming blotch-like and filling up space between vein 1 and inner margin; area between this and apex greenish tinged; basal third of cell blackish; cilia as above. Hindwings beneath greenish yellow; transverse band reproduced in reddish orange, and edged above and below with a blackish line, interrupted so as to form spots; a reddish, posteriorly black edged spot in end of cell; inner marginal area broadly reddish-orange, attenuated towards base; a large blackish blotch above anal angle, obscurely cut in centre by vein 1; a fine black line along termen, abruptly terminating at vein 2; cilia as above.

The female of this species is, according to Moore (P.Z.S., p. 690, 1878): "Paler brown above, the yellow bands of upper side also paler, less prominent, there being no yellow along costal border of forewings, and no median streak from base of hindwings. Under side pale vinous-brown, this color pervading upper portion of the discal on the forewings, and entire discal band of hindwings."

The male differs from its allies by the band of hindwings extending to vein 7, and the greenish under side of hindwings and attendant markings.

Scott (Austr. Sep., pl. xiv.) figures the male and female of this species as *Phineus*, Cr., and the female appears to be more like *Ulama*, Butler, but the male is well drawn and easily recognisable. The type of *Phineus*, Cr., came from Surinam, and has been erroneously recorded from Australia. Watson (P.Z.S., 1893) considers Scott's male to represent the male of *Augiades*, Feld., and the female a bad figure of *Prusias*, Feld. Both species, so far as we are aware, have not yet been taken in Australia. The larva, which is pale greenish yellow, feeds on various species of *Palms*. We have bred specimens from *Kentia fosteriana* in November.

Sydney, New South Wales; Cooktown, Townsville, and Mackay, Queensland. It has not occurred at Brisbane up to the present. From November to January; nine specimens.

63. Erynnis macleayi, Plotz.

(*Hesperilla Macleayi*, Plotz., Stett. Ent. Zeit., xliv., p. 227, 1883; ? *Pamphila autoleon*, Misk., Proc. Roy. Soc., Queensland, 2, p. 147, 1889.)

Male and female, 30-46 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, palpi beneath yellowish, thorax and abdomen clothed with yellowish hairs. Legs ochreous, fuscous tinged. Forewings elongate, triangular, costa nearly straight, termen gently bowed, oblique; dark purplish fuscous, markings orange; anterior half of costa dull orange; an oblique transverse series of 3 cartridge-shaped sub-costal spots at two-thirds from base, posterior extremities excised; an inwardly oblique transverse row of 4 spots; first very small, lying on middle of vein 4; second cuneiform, obliquely below; third similar, obliquely below second; third irregular quadrate, lying below on vein 1, the lower third is continued as a fine streak along vein 1 to base; a streak along inner margin from base to middle, posteriorly dilated; stigma short, irregular, broken into 3 spots, fuscous, lying close to anterior edge of transverse spots; cilia dark fuscous, becoming orange on lower third of termen. Hindwings with termen sinuate above anal angle; color as in forewings; basal and inner marginal hairs orange; a suffused streak in cell near base; a rather narrow sub-median transverse orange band, between veins 1 and 6, extremities suffused, hardly separated into spots by intersecting veins, upper edge deeply sinuate below apex, posterior edge somewhat lunulate; cilia deep orange, becoming fuscous on upper two-thirds at base. Under side of forewings ferruginous, tinged with purplish, much lighter on upper two-thirds of termen; markings of upper side reproduced in ochreous; a narrow ochreous streak in cell; cilia as above. Hindwings beneath with color as forewings, but somewhat tinged with ochreous; markings of upper side obscurely reproduced; a dull ochreous streak between veins 1 and 2; cilia as above.

Easily recognised by the paucity of markings and absence of coloring in cell on upper side of forewings. The stigma is obscure and liable to be overlooked. The large female is of exceptional size; the average is about 36 mm.

Cardwell, Cairns, and Brisbane, Queensland; ? Sydney, New South Wales; in November.

64. Erynnis sperthias, Felder.

(*Hesperilla sperthias*, Feld., Verh. Zool. Bot. Ges., xii., p. 492, n. 182, 1862).

Male 44, mm. Head, palpi, thorax, antennæ, and abdomen dark fuscous, thorax and abdomen clothed with dense ferruginous-orange hairs, beneath yellowish, abdomen with suffused lateral bands of orange posteriorly, antennæ beneath yellow, not spotted, club yellowish, apical half reddish. Legs orange. Forewings elongate, triangular, costa almost straight, termen oblique, faintly bowed; dark fuscous, with orange markings; a moderate costal streak from base to just before two-thirds, cut posteriorly by veins 9 to 12; an oblique transverse series of 3 elongate-cuneiform subcostal spots at three-fourths from base, posteriorly excavated, edged more or less, continued as fine streaks along veins towards termen and costa; cell filled up with orange, except a small patch of ground color at posterior end of cell, an inwardly oblique row of 5 spots; first small, immediately below posterior extremity of lowest subcostal spot, sometimes hardly traceable; second below and slightly beyond, similar; third cartridge-shaped, between veins 3 and 4 near base; fourth elongate-quadrate obliquely below; fifth irregular, lower half continued as a thick streak along vein 1 to base; some orange scales just above near base; a moderately thick streak along inner margin from base to middle, posteriorly dilated; cilia blackish, between anal angle and vein 1, orange. Hindwings with termen sinuate above anal angle; color as in forewings; basal and inner marginal hairs orange; markings orange; the basal hairs accumulate near posterior extremity of cell and form a more or less distinct patch; a moderately broad transverse submedian series of 5 somewhat quadrate spots, between veins 1 and 6, separated by intervening veins, except that between veins 1 and 2, which sometimes coalesce, thus forming only four spots; cilia orange narrowly mixed at base with blackish on upper two-thirds. Under side of forewings blackish; basal half of cell blackish; wings beyond cell and upper two-thirds of termen orange; markings upperside faintly reproduced; 3 lower spots between veins 1 and 4 very distinct, but streak along vein one, and inner marginal streak absent; a fine blackish hind marginal line, just reaching vein 2; cilia as above. Hindwings beneath orange-ferruginous, markings of upper side faintly reproduced; a large blackish elongate patch above anal angle; a smaller patch above termination of vein 1; hind marginal line and cilia as in forewings.

Distinct from the other similarly colored species in the Australian group by its large size. It has been known to Australian collectors as *Augiades* Felder, an insect, as before mentioned, occurs only in Amboina and Batavia. According to Elwes and Edwards (Rev. Or. Lep., pp. 250, 253) the female of that species is very similar to *Palmarum* Mre., and the females possess no sexual characters by which they may be separated. They state, however, in the male of *Augiades*, that the *whole* of the cell of forewing on under side is orange; in *Sperthias* the basal half is black. Most Australian collectors avow that the insect described by Butler as *Ulama* is the female of this species, but as we have no really reliable source of information (but we hope to have shortly) to depend upon, we think it better to retain them as distinct species for the present. This present species is very similar in appearance to the following, but the distinctive characters appear to be its larger size, additional dot below subcostal series (thus forming a complete fascia of marks), and broader band of hindwings, and additional mark above apex of same. These markings are fairly constant.

The larva feed on several kinds of palms, notably *Livistona Australis*, *Kentia fosteriana*, and *Belmoriana*. The imago appears from November to February.

Brisbane, Mackay, Cooktown, and Cairns, Queensland; Sydney, New South Wales; Java, India, and Borneo.

65. Erynnis olivescens, Herr-Sch.

(*Pamphila olivescens*, H.S., Stett. Ent. Zeit., p 79, n. 60, t. 3, fig. 14, 1869).

Female, 36-38 mm. Head, palpi, antennæ, thorax, legs and abdomen as in *Sperthias*. Forewings elongate-triangular, termen gently bowed, oblique; color and markings as in *Sperthias*, but orange spot between veins 7 and 8 and connecting subcostal spots with transverse fascia absent. Hindwings with termen rounded, faintly produced before anal angle; color and markings as in *Sperthias*, but sub-median band much narrower and not continued above vein 6; cilia of both wings as in *Sperthias*. Under side of both wings orange-yellow, markings of upper side, except inner marginal streak, reproduced in pale ochreous; dorsal third of wing, except along termen, blackish; basal half of cell blackish, division suffused.

The specific distinctions are given at footnote of previous species. This is the insect which has stood for *Phineus*, Cr., in Australian collections, and is probably the one Mr. Mat-

thews refers to (T.E.S., p. 179, 1888) when writing on the subject. Its habits are similar to the previous species. Schaeffer's figure is good.

Sydney, New South Wales; Brisbane, Queensland; eight female specimens in November.

66. Erynnis ulama, Butler.

(*Pamphila ulama*, Butl., Trans. Ent. Soc., p. 504, 1870; ? *Corone ismenoides*, Mab., pet. Now. Ent., ii., ? 1878.)

Female, 38-42 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, palpi and thorax beneath ochreous, thorax and abdomen more or less clothed with yellowish hairs, antennæ beneath yellowish, club reddish on apical half. Legs ochreous-fuscous. Forewings elongate, triangular, costa gently arched on basal half, termen obliquely rounded; dark purplish-fuscous, somewhat shining; markings dull golden-orange; basal hairs bluish white; a somewhat quadrate spot in end of cell, excised in middle; upper edge more elongate posteriorly; an oblique transverse series of 3 elongate subcostal spots at two-thirds from base; a transverse series of 4 inwardly oblique spots; first cartridge-shaped, near base of veins 3 and 4; second below, similar, larger; third and fourth elongate, below second, only separated by a streak of ground color; all markings sometimes nearly obsolete; cilia dark fuscous. Hindwings with termen sinuate above anal angle; basal and inner marginal hairs bluish white; a sub-median transverse row of 5 equidistant orange spots, between veins 1 and 6, anterior pair rather obscure; cilia as in forewings, but orange around anal angle. Under side of forewings fuscous, purplish tinged, upper two-thirds of termen and apical area dull reddish; markings of upper side reproduced in ochreous-white, third and fourth spots of transverse series becoming confluent. Hindwings beneath with color as in forewings, basal area somewhat bluish-tinged; markings of upper side reproduced; inner marginal area broadly dark fuscous and becoming blotch-like on anal angle: cilia as above.

Not unlike female *Palmarum*, according to Moore's figure, but very different on under side. We have 2 supposed *males* of this species, but in poor condition.

Sydney, New South Wales; Bowen, Mackay, and Brisbane, Queensland; in November and January.

67. Erynnis fuliginosa, Misk.

(*Pamphila fuliginosa*, Misk., female, Proc. Roy. Soc., Queensland, vi., p. 147, 1889; male, *ib.*, Ann., Queensland Museum., p. 76, 1891.)

Male and female, 35-40 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark fuscous, thorax and abdomen sparsely clothed with yellowish hairs, palpi and thorax beneath ferruginous, abdomen beneath fuscous, with four whitish segmental rings, club of antennæ beneath ochreous. Forewings elongate-triangular, costa faintly sinuate in middle, termen obliquely rounded; blackish, fuscous, with bluish tinge; basal hairs yellowish; a narrow, obscure, yellowish streak along inner margin from base to middle; stigma black, oblique; cilia dark fuscous. Hindwings with termen slightly sinuate before middle; color as in forewings; basal and inner marginal hairs light ochreous; cilia dark fuscous, becoming snow-white from middle of termen to anal angle. Under side of forewings ferruginous, basal and median area more or less dark fuscous; some bluish scales near base. Hindwings beneath with color as in forewings; basal area bluish tinged; a transverse row of 4 equi-distant bluish spots beyond middle of wing, less distinct in male; cilia as above.

Known by the snow white cilia of hindwings.

Cairns, Cardwell, and Mackay, Queensland; in January.

68. Erynnis fulgida, Misk.

(*Hesperilla fulgidus*, Misk., Proc. Roy. Soc., Queensland, p. 151, 1889.)

Male and female, 28-32 mm. Head, palpi, thorax, antennæ, and abdomen dark fuscous, thorax and abdomen densely clothed with orange hairs, beneath orange, antennæ yellowish beneath, apical half of club blackish beneath. Legs yellow. Forewings elongate, triangular, costa nearly straight, termen oblique, faintly sinuate on lower third; dark fuscous, densely irrorated more or less throughout with fine ochreous orange scales, more dense on basal half of wing; markings yellowish, semi-hyaline; an oblique transverse series of 3 elongate subcostal spots, upper nearly obsolete, at two-thirds from base; a moderate, somewhat ovate spot lying on vein 4 and immediately below lower subcostal; a second,, cartridge-shaped, obliquely below, lying near base of veins 3 and 4; a third, large and similar, lying at base of veins 2 and 3, posterior edge excised; cilia fuscous-whitish, becoming dark fuscous on basal half. Hindwings with termen sinuate before middle; color as in forewings; base, cell, and inner margin densely clothed with long bright ochreous hairs, becoming very dense along vein 1; a transverse sub-median series of 4 yellowish semi-hyaline parallel spots, between veins 2 and 6, third spot more

elongate than others, and extending beyond apices of other 3; cilia yellowish, orange, blackish at base. Under side of both wings yellowish orange; dorsal third of forewings blackish; markings of upper side reproduced and edged with shining-golden; markings on hindwings reproduced and similarly edged. Cilia on both wings as above.

Known by its intense coloring and similarity of upper and under side of both wings.

Mr. Illidge has taken the larvæ on millett.

Brisbane, Mackay, and Duaringa, Queensland; in December.

69. Erynnis mathias, Fab.

(*Hesperilla mathias*, Fab., Ent. Syst. Supp., p. 433, n. 289, 290, 1798; *Hesperia thrax*, Led., Verh. Zool. Bot. Ges. Wren, 1855, p. 194, plate 1, figs. 9-10; *H. agna*, Moore, P.Z.S., p. 791, 1865; *H. chaya*, *ib. l.c.*, 791, 1865; *Pamphila mencia*, Moore, Ann. and Mag. Nat. Hist. (4), xx., p. 52, 1877.)

Male and female, 30-36 mm. Head, palpi, thorax, legs, and abdomen dark fuscous-golden, clothed with fuscous-golden hairs, head and palpi sometimes greenish-tinged, palpi and thorax beneath whitish-ochreous. Antennæ dark fuscous, beneath ochreous, spotted with blackish, club ochreous beneath, apical half reddish. Forewings elongate, triangular, costa gently arched, termen obliquely rounded, somewhat sinuate below middle; dark fuscous-golden, somewhat shining; basal and inner marginal areas clothed with greenish-yellow hairs; markings of male rather obscure, in female well developed, whitish; a spot in end of cell; a second immediately above; an irregular oblique transverse series of 3 roundish spots beneath costa at two-thirds from base; a small roundish spot below and slightly beyond, resting on vein 4, almost obsolete in male; a moderate roundish spot obliquely below and before, lying near base of veins 3 and 4; a large irregular diamond-shaped spot, lying near base of veins 2 and 3, only represented in male by a narrow streak, from which proceeds a very inwardly oblique dull whitish, black-edged stigma, reaching nearly to middle of vein 1; a moderate ovate spot lying on vein 1 beyond middle, obsolete in male; cilia dark fuscous, tips whitish. Hindwings with termen sinuate above anal angle; color as in forewings, dorsal two-thirds, except termen, densely clothed with ochreous hairs. Under side of both wings dark fuscous, clothed with ochreous-whitish scales, except dorsal two-thirds of forewings, which is fuscous, markings of upper side, except stigma, reproduced; a very small whitish sub-median

spot, sometimes absent, on hindwings between veins 2 and 3; not in male; cilia as above.

Somewhat allied to *Colaca*, Moore, but differs, according to Elwes and Edwards (Rev. Or. Hesp., p. 171, 1897), from that species by the absence of spots on hindwings *above*, although we possess a female specimen from Palmerston, South Australia, in which 2 yellowish sub-median spots are well developed, otherwise similar.

Mr. Miskin gives *Hesperilla julianus*, Latr., Enc. Meth., ix., p. 763, n. 99, 1819, as a synonym.

The larvæ are said to be attached to *Ischæmum pretinctum*.

This is probably the most widely distributed species we have in Australia; occurring also in India, Ceylon, Japan, Borneo, China, and Malayana, also Brisbane, Mackay, and Townsville, up to Cape York in Queensland; Palmerston, Northern Territory, South Australia; from October to February.

70. Erynnis cæsina, Hew.

(*Carystus cæsina*, Hew., T.E.S. (3), ii., 491, n. 15, 1866; Ex. Butt., v., Hesp., t. 6, fig. 15, 1866; *Pamphila albifascia*, Misk., Proc. Roy. Soc., Queensland, p. 148, 1889.)

Male, 26 mm. Head, palpi, thorax, and abdomen blackish, thorax and abdomen clothed with greyish hairs, palpi whitish white. Legs dark fuscous, coxæ more or less clothed with beneath. Antennæ black, club beneath, except apex snow white. Legs dark fuscous, coxæ more or less clothed with white hairs. Forewings elongate, triangular, costa gently arched, termen bowed on upper half, thence nearly straight, oblique; dark fuscous, spot with bluish purple; markings white; a small subcostal spot at two-thirds from base, indicating lower of subcostal series; a somewhat quadrate spot just below, resting on vein 4; a cuneiform spot lying at base of veins 3 and 4; a large, somewhat quadrate spot, obliquely below; a roundish spot immediately below this, sometimes accompanied by a suffused whitish spot below, almost coalescing; cilia blackish, basal half black. Hindwings with termen irregularly rounded; color as in forewings; basal area light fuscous; an oblique transverse band of snow-white just beyond extremity of cell, edges irregular, anteriorly narrowed and suffused, posterior extremity suffused, hardly reaching vein 7; cilia as in forewings. Wings beneath dark reddish, mixed with purplish; basal third of forewings and along inner margin fuscous; markings of upper side of forewings reproduced, and with an additional spot just below subcostal. Hind-

wings with a large white, somewhat triangular, irregularly edged patch, upper edge extending from base through middle of cell to vein 7 and two-thirds from base, with a deep indentation of ground color in middle and sinuate on either side of this; lower edge crenulate beyond middle, extending from veins 1 to 7, and containing a spot of ground color at base of vein 2; a white streak along inner margin, separated from patch by a streak of ground color; cilia as above, but becoming white around ternus.

The white club of antennæ and rich coloring of under side makes this species easy of recognition.

Cairns, Queensland; two specimens, in October; also from New Guinea.

12. Notocrypta, Nic.

Club of antennæ elongate, apex pointed, bent. Palpi subascending, terminal joint short, obtuse, porrected. Posterior tibiæ with all spurs, rather long. Forewings in male without stigma; 3 from rather near 4, 5 somewhat approximated to 4. Hindwings: 5 obsolete.

71. Notocrypta felisthamelii, Boisd.

(*Thymele Feisthamelii*, Boisd., Voy. Astr. Lep., p. 159, pl. ii., fig. 7, 1832; *Pleisoneura curvifascia*, Feld., Wien. Ent. Mon., vi., p. 29, 1862; *P. alysos*, Moore, P.Z.S., 1865, p. 789; *P. albifascia, ib. l.c.*, 1878, p. 843, pl. 843, pl. liii., fig. 3, male; *P. restricta, ib.*, Lep. Cey., i., p. 178, 1881; *P. volux*, Mab., Ann. Soc. Ent. Belg., 1883, p. lvi.; *P. clavata*, Staud, Iris., ii., p. 153, pl. ii., fig. 9, 1889.)

Male and female, 36-46 mm. Head, palpi, antennæ, thorax, legs, and abdomen blackish, thorax clothed with light fuscous hairs, palpi and abdomen mixed with whitish beneath, club of antennæ somewhat ochreous beneath. Forewings elongate, triangular, costa strongly arched, termen obliquely rounded; black, markings silvery white, hyaline; a broad transverse irregularly edged median band, from immediately beneath costa, slightly curved, and terminating on vein 1 at two-thirds from base; two sub-costal spots at two-thirds from base; a similar spot near termen, lying between veins 4 and 5; cilia blackish. Hindwings with termen somewhat crenulate; color and cilia as in forewings; basal and inner margin hairs light fuscous, darker basally. Under side of both wings light fuscous, darker basally; costa of hindwings dark fuscous, faintly purplish tinged; markings of upper side of forewings reproduced.

We have followed Elwes and Edwards in the synonym of this

species. The Australian form is Moore's *Restricta*, which varies very little, those from the more northern districts of Queensland being most constant.

Cardwell, Cairns, Cooktown, and Mackay, Queensland; India, Java, China, and Philippines; November to January.

13. Badamia, Moore.

Club of antennæ elongate, pointed, bent. Palpi ascending, terminal joint long, slender, slightly swollen near apex, obtusely pointed, porrected. Posterior tibiæ with all spurs. Forewings in male without stigma; 5 parallel to 4 and 6, equidistant. Hindwings 3 and 4 remote, 5 present.

Contains only the single species, recognised by the curious form of wings.

72. Badamia exclamationis, Fabr.

(*Papilio exclamationis*, Fab., Syst. Ent., p. 530, 1775; *P. ladon*, Cramer, Pap. Ex., iii., pl. cclxxxiv., fig. c., female; *Ismene thymbron*, Feld., Sitzb., Ak. Wiss. Math. Nat. Cl., xl., p. 461, Lep., p. 14, 1860.)

Male and female, 58-64 mm. Head, palpi, thorax, antennæ, and legs fuscous-ochreous, head more ochreous, palpi and thorax beneath whitish, antennæ yellowish-beneath near base, club reddish beneath. Forewings very elongate, costa arched, termen oblique, somewhat sinuate above anal angle; dark ochreous-fuscous, shining somewhat; basal hairs greyish; costa and inner margin broadly suffused with obscure greenish-white; markings semi-hyaline whitish; a cuneiform spot in middle of cell, absent in male, lower edge shortly produced; a triangular spot near base of veins 3 and 4, nearer to 4 than 5, represented in male by a small white spot; a large elongate upper edge excised, represented in male by a very elongate streak just below base of veins 3 and 4; an elongate streak lying on vein 1 beyond middle, absent in male; cilia dark fuscous. Hindwings with color as in forewings, termen strongly excised below middle and produced on vein 1; basal and inner marginal hairs grey-whitish, faintly bluish-tinged; cilia fuscous-whitish. Under side of wings grey-whitish, markings of upper side obscurely reproduced; base of forewings dark fuscous; a suffused elongate streak of dull whitish above inner margin beyond middle; hindwings with a somewhat suffused crescentric whitish mark at two-thirds from base, between veins 1 and 2; area around anal angle dark fuscous; cilia whitish, terminal half tinged with fuscous.

Sydney, Bulli, and Richmond River district, New South Wales; Mackay, Cairns, and Cooktown, Queensland; occurs also in India, Ceylon, and Tonga.

14. Hasora, Moore.

Club of antennæ elongate, pointed, bent. Palpi ascending, terminal joint long, slender, slightly swollen near apex, obtusely pointed, porrected. Posterior tibiæ with all spurs. Forewings in male sometimes with stigma; 1b distorted downwards near base, 5 parallel to 4 and 6, slightly nearer 6 at base. Hindwings: 3 and 4 closely approximated basally; 5 present.

An Indo-Malayan genus of moderate extent, somewhat allied to *Ismene*, Swanison, differing, however, by the curious distorting of vein 1b. The pale spots of forewings are much more distinctly developed in female than in male; in fact, in some species the latter sex are entirely devoid of markings on upper side.

1. Forewings above without markings, except stigma ... ... *Chromus*, male.
   Forewings above with 3 whitish spots ... ... *Lucescens*, female.
2. Wings beneath iridescent purplish without markings ... ... *Lugubris*, male.
   Wings beneath blackish fuscous, with a few bluish-white spots ... 5
3. Forewings above fuscous, without markings or stigma ... ... *Bilunata*.
   Forewings above fuscous, with moderate stigma 6
4. Hindwings beneath bluish-green transverse band, very broad, ochreous, entire ... ... *Discolor*.
   Hindwings fuscous-lilac, transverse band moderate, interrupted at vein 1b 3
5. Basal hairs brilliant golden-green... *Doleschallii*.
   Basal hairs greenish 4
6. Transverse band of hindwings broad, whitish, entire, not interrupted ... ... *Hurama*.
   Transverse band of hindwings narrow, pure white, interrupted at vein 1b 1

73. Hasora bilunata, Butl.

(? *Hasora haslia*, Swinh., Ann. Mag. N.H., iii. (7), 107.)

Male and female, 50-60 mm. Head, palpi, and thorax dark fuscous, mixed with metallic greenish hairs. Abdomen and antennæ dark fuscous, abdomen somewhat purplish tinged, palpi beneath ochreous, club of antennæ reddish beneath. Legs fuscous. Forewings elongate, triangular, costa gently arched, termen hardly rounded, oblique; dark fuscous, somewhat tinged with greenish-golden; basal hairs bluish-green; spots whitish, semi-hyaline; all markings in male absent; stigma absent; a small round subcostal spot at two-thirds from base between veins 6 and 7; an irregular triangular spot lying between veins 3 and 4 beyond middle; a similar spot obliquely below, between veins 2 and 3, touching vein 3; cilia dark fuscous. Hindwings with color as in forewings, termen produced on vein 1; basal and inner marginal hairs metallic blue-green, fuscous posteriorly; cilia as in forewings. Underside of both wings ochreous-fuscous, lighter in cell and along termen; markings of upper side of female reproduced, and with a suffused whitish spot on vein 1b; beyond subcostal spot is a short suffused obscure transverse whitish streak, hardly traceable in male; hindwings with faintly curved transverse snow-white fascia, narrowed at commencement and gradually dilated to termination from costa at three-fifths direct to vein 1a above anal angle; a large dull blackish apical patch; a moderate suffused, whitish patch on inner margin above anal angle; cilia dark fuscous, with a short streak of white at base on either side of anal angle.

Somewhat allied to the following, but very distinct by the much narrower fascia of hindwings, more sombre coloring, and especially by the absence of stigma of male. It closely resembles *Chromus*, but differs by the presence of stigma, larger size, and spot on vein 1b.

Brisbane; Queensland, in November.

74. Hasora lucescens, Lucas.

(*Ismene lucescens*, Lucas, Proc. Roy. Soc., Queensland, vol. xv., p. 138, 1899.)

Male and female, 42-48 mm. Head, thorax, and abdomen dark fuscous, more or less densely clothed with greenish hairs. Palpi and antennæ dark fuscous, palpi beneath ochreous. Legs ochreous-fuscous. Forewings elongate, triangular, costa gently arched, termen nearly straight, oblique; dark velvety-fuscous; basal hairs greenish; markings white, semi-hyaline; absent in male; a somewhat triangular shaped spot near base

of veins 3 and 4; a similar spot, excised posteriorly obliquely below, between veins 2 and 3; stigma of male narrow, curved, blackish, from inner margin before middle, thence curved round to base of vein 3, suffusedly edged with blackish; sometimes a very minute white subcostal spot between veins 6 and 7, generally absent; cilia dark fuscous, tips whitish. Hindwings with termen produced on vein 1; color as in forewings; basal hairs greenish; inner margin broadly dull light fuscous; cilia as in forewings. Under side of both wings fuscous, washed with bluish-purple; cell of forewings blackish; markings of upper side of female reproduced, hindwings with a moderately broad direct transverse white fascia, edges suffused, and mixed with bluish, from costa at three-fifths to vein 1b; a large patch of velvety black on anal angle; a white patch on inner margin just above anal angle; an obscure dull whitish streak along vein 1a to base; cilia as above, black on anal angle, and with a fine white basal line between veins 1b and 3.

Cooktown and Cairns, Queensland; in October and December. The types came from Cairns. In the original description no mention is made of the stigma of male. It could easily be passed over, as it is somewhat hidden by the long basal hairs.

75. Hasora discolor, Felder.

(*Goniloba discolor*, Feld., Wien. Ent. Mon., iii., p. 405, n. 50, 1859; *Ismene discolor*, *ib.*, Reise. Nov. Lep., iii., taf. 72, f. 17, 1867.)

Male and female, 40-48 mm. Head, thorax, and abdomen dark fuscous densely clothed with metallic-green hairs, palpi and antennæ dark fuscous, palpi, thorax, and abdomen beneath blue-green; legs fuscous. Forewings elongate, triangular, costa gently arched, termen gently bowed, oblique, dark fuscous-golden; basal hairs metallic-blue-green; stigma absent; cilia dark fuscous. Hindwings with termen produced on vein 1; color and basal and inner marginal hairs as in forewings; a tuft of long metallic-blue hairs on inner margin above anal angle; cilia as in forewings, but becoming black from vein 1b, around inner margin. Under side of both wings blue-black, becoming olive-greenish on hindwings on basal half; markings of forewings golden-greenish; a slightly outwards curved narrow transverse fascia; from five-sixths of costa to anal angle; a broad transverse fascia from middle of costa to beyond middle of inner margin, becoming lilacine on lower fourth and enclosing a large spot of ground color beneath costa; inner margin broadly light fuscous; hindwings with a broad yellowish trans-

verse fascia, broadly in middle, from costa just before apex direct to vein 1b; a bluish metallic patch on inner margin above anal angle; a greenish-golden hind-marginal line, rather narrow, with a slight projection on vein 2 and terminating before anal angle; cilia as above.

A beautiful insect when fresh, especially the under side; it differs from all the other known Australian species by the different color of band of under side of hindwings.

Brisbane, Mackay, and Cooktown, Queensland; Richmond River district, New South Wales; in December.

76. Hasora lugubris, Boisd.

(*Thymele lugubris*, Bdv., Voy. Astr. Lep., p. 160, No. 5, 1832.)

Male, 52 mm. Head, thorax, palpi, antennæ, legs, and abdomen fuscous, palpi, thorax, and abdomen yellowish beneath. Forewings elongate, triangular, costa gently arched, termen hardly bowed, nearly straight, oblique; ochreous-fuscous; an irregularly suffused, outwardly oblique blackish stigma, from just beyond one-third of inner margin to base of cell 3; cilia ochreous-fuscous. Hindwings with termen produced on vein 1; color and cilia as in forewings; basal and inner marginal hairs ochreous-fuscous. Under side of both wings ochreous-fuscous, more or less suffused with metallic-purple, especially hindwings; base below cell and along inner margin ochreous-fuscous; faint indications of a sub-median transverse whitish-purple fascia.

The absence of markings and purple coloring of under side of wings are notable characteristics.

Cape York, Queensland; one specimen, in December.

77. Hasora hurama, Butler.

(*Hesperilla hurama*, Butler, T.E. Soc., p. 498, 1870; Lepid. Ex., p. 166, t. 59, fig. 10, 1874; *Ismene hurama*, *Misk.*, Ann., Queensland Mus., p. 74, 1891.)

Male and female, 48-54 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark fuscous, head and thorax mixed with greenish-metallic hairs, palpi beneath ochreous. Forewings elongate, moderate, costa gently arched, termen slightly rounded near apex, thence oblique; dark purplish fuscous; basal hairs greenish-golden; without markings; stigma of male formed by blackish seam-like scales, from before middle of inner margin to base of vein 3; cilia dark fuscous. Hindwings with termen produced on vein 1, color, basal hairs and cilia as in

forewings; inner margin clothed with long fuscous hairs. Under side of forewings fuscous, purplish tinged between termination of cell and termen, more pronounced in female; cilia as above. Under side of hindwings fuscous, wholly suffused with iridescent purple; a broad transverse white entire fascia, broadest in middle, posterior edge straight, anterior edge somewhat projecting in middle, from three-fourths of costa direct to vein 1b, thence deflected to inner margin above anal angle; a suffused blackish blotch on anal angle; cilia as above, but becoming whitish at base between veins 1 and 2.

Distinct by the broad entire fascia of under side of hindwings.

Watson (P.Z.S., 1893) spells this *Hurana*.

Cooktown, Cardwell, and Mackay, Queensland; five specimens, November to February.

78. Hasora chromus, Cramer.

(*Papilio chromus*, Cramer, Pap. Ex., iii., pl. cclxxxiv., fig. E., male, 1782; *Parata chromus*, Moore, Lep. Cey., i., p. 161, pl. lxv., figs. 1, a, b, 1881.)

Male and female, 40-48 mm. Head, palpi, antennæ, thorax, legs, and abdomen dark fuscous, palpi beneath faintly ochreous, collar greenish. Forewings elongate, triangular, costa gently arched, termen faintly rounded, oblique; dark fuscous, without markings; basal hairs fuscous; stigma of male formed as interneural streaks; cilia dark fuscous. Hindwings with termen produced on vein 1b; color, basal hairs, and cilia as in forewings. Under side of forewings dark fuscous; cilia as above. Under side of hindwings as forewings; a narrow, white, transverse fascia, posteriorly dilated, from costa at three-fourths direct to vein 1b, and there dilated; a small whitish patch on inner margin near termination of vein 1a; a large blackish patch on anal angle; cilia fuscous, becoming white at base between veins 1 and 2.

Varies somewhat in size and width of white band of under side of hindwings. Those which we possess from India and Ceylon show a tendency to be suffused with purplish on under side of hindwings. The species named *Lucescens* by Dr. Lucas has been confused with the present species. However, the totally different form of the stigma, which in the former is well developed and of raised crescentic form, is very different to that of *Chromus*, in which it appears (in Australian specimens) as short longitudinal raised interneural streaks. The broad band of hindwings of former is also a conspicuous character. Messrs. Elwes and Edwards give *Alexis*, Moore, and *Malayana*, Feld. as, synonyms.

Brisbane and Mackay, Queensland, in December; occurs also in India and Java.

79. Hasora doleschallii, Feld.

(*Ismene doleschallii*, Feld., Sitzb. Ak. Wiss. Wien. Math. Nat. Cl., xl., p. 460, 1860; Reise. Nov. Lep., iii., t. 72, fig. 16, 1867.)

Female 50 mm. Head and palpi greenish-golden. Thorax, antennæ, legs and abdomen dark fuscous, thorax and anterior half of abdomen clothed with golden-greenish hairs, thorax beneath bluish-green. Forewings elongate, triangular, costa gently arched, termen gently rounded, oblique; dark fuscous; basal fourth of wing clothed with golden-green hairs, cilia dark fuscous. Hindwings with termen prominent on vein 1, not produced; dark fuscous; basal and inner marginal hairs golden-green, becoming bluish posteriorly; cilia as in forewings. Forewings beneath fuscous; markings whitish; a small spot in middle of cell; a second similar near base of veins 3 and 4; a short transverse lilacine streak from vein 1 beyond middle to near vein 3, its apex directly between first 2 spots, but not quite reaching them. Hindwings blackish-fuscous; a small bluish-white spot in cell near base; a moderate bluish-white spot two-thirds from base, between veins 1 and 2; cilia dark fuscous, becoming snow-white at base from anal angle to vein 3, but interrupted at extremities of veins.

A very beautiful species; remarkable for the paucity of markings on both upper and under sides of wings.

Cooktown, Queensland; two specimens in December. Occurs also in New Guinea and Molucca.

List of Unrecognised and Reputed Australian Species.

80. *amalia*, Semp. (*Pamphila*) (Mus. Godf. Lep, XIV., p. 183, 1878). Rockhampton.
81.**ancilla*, Herr-Sch. (*Pamphila*) (Stett. Ent. Zeit., p. 79, n. 59, 1869). Rockhampton.
82. *argeus*, Plotz. (*Hesperilla*) (Stett. Ent. Zeit., XLIV., p. 227, 1883). Cape York.
83. *argina*, Plotz. (*Pyrgus*) (*l.c.*, XLV., n. 22, 1884). Brisbane.
84. *atrax*, Mab. (*Hesperilla*) (Comp. Rend. Ent. Belg., XXXV., p. lxxxi.). Australia.
85. *augiades*, Feld. (*Pamphila*) (Sitzb. Ak Wien M. N., cl. XV., p. 461, n. 51, 1860. Reis Nov. Lep. III. t. 72, f. 5, 1867). Probably recorded in error for *sperthias*, Feld.
86. *australensis*, Mab. (*Tagiades*) (Comp. Rend. Ent. Belg., XXXV., p. lxxii.). Australia.

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* This is probably *Telicota augias*, Linn.

87. *bifasciata*, Tepp. (*Hesperilla*) (Tr. Roy. Soc., S.A., IV., p. 32, t. 2, f. 4, 1881). Lyndoch, S. Australia.

"Clear brown, with four oval yellow spots near the margin (termen), three similar near base, and a semilunar one between them and edge (costa). A double band—the outer *white*, the inner yellow—margins the posterior wings, and a small round yellow spot near base."

Mr. Tepper has supplied us with an exeellent colored drawing of this species The band of hindwings is a characteristic feature. The type, unfortunately, has been lost.

87A. *colaca*, Moore (*Pornara*) (P.Z.S., 1877, p. 594, pl. lviii., fig. 7).

M, Rowland Turner, of Mackay, has informed us that he has taken this species in the above district. Specimens were submitted to M. DeNiceville, who stated that they were exactly the same as Indian specimens.

88. *contempta*, Plotz. (*Ismene*) (Stett. Ent. Zeit., XLV., p. 56, 1884). Cape York.
89. *dolon*, Plotz. (*Apaustus*) (*l.c.*, XLIV., p. 166, 1884). Australia.
90. *eaclis*, Mab. (*Hesperilla*) (C.R. Ent. Belg., p. 63, 1883). Australia.
91. *extranea*, Plotz. (*Telesto*) (Stett. Ent. Zeit., p. 383, 1884). Australia.
92. *impar*, Mab. (*Pamphila*) (C.R. Ent. Belg., p. 46, 1883). Australia.
93. *indusiata*, Mab. (*Hypoleucis*) (*l.c.*, XXXV., p. cxiii.). Victoria.
94. *lagon*, Mab. (*Pamphila*) (*l c.*, p. lxxxii.). Cooktown.
95. *leucopogon*, Mab. (*Proterodes*) (*l.c.*, p. cxi.). Victoria.
96. *melissa*, Mab. (*Hesperilla*) (*l.c.*, p. lxxxi.). Australia.
97 *neocles*, Mab. (*Pamphila*) (*l c.*, p. clxviii.). Cooktown.
98. *nox*, Mab. (*Pamphila*) (*l.c.*, p. clxviii). Victoria.
99. *phineus*, Cr, (? *Erynnis*) (Pap. Ex., II., t. 176, E. 1779). Recorded probably in error.
100. *rectivitta*, Mab. (*Pamphila*) (Pet. Nouv. Ent., II., p. 237, 1878). Australia (?).
101. *Rietmanni*, Semp. (*Hesperilla*) (Mus. Godf. Lep, XIV., p. 187, 1878). Sydney.
102. *satulla*, Mab. (*Hesperilla*) (C.R. Ent. Belg., XXXV., p. lxxxii.). Australia.
103. *saxula*, Mab. (*Hesperilla*) (*l.c.*, p. lxxxi.). Australia.
104. *sigida*, Mab. (*Pamphila*) (*l.c.*, p. clxviii). Australia.
105. *tyrrhus*, Mab. (*Toxidia*) (*l.c.*, p. lxxx.). Cooktown.
106. *vallio*, Mab. (*Carystus*) (C.R. Ent. Belg., LX., p. 27, 1883). New Holland.

Index.

GENERA.

Genera asterisked are confined to the Australian region. Names of species in italics are synonyms. The numbers refer to those attached in ordinal succession.

Apaustus, *Hüb* - - 9
Badamia, *Moore* - - 13
Casyapa, *Kirby* - - 1
Erynnis, *Schranck* - - 11
*Exometoeca, *Meyr* - - 8
Hasora, *Moore* - - 14
*Mesodina, *Meyr* - - 5
*Netrocoryne, *Feld.* - - 3
Notocrypta, *Nic* - - 12
*Phœnicops, *Watson* - - 2
Tagiades, *Hüb* - - 4
*Telesto, *Bdv.* - - 6
Telicota, *Moore* - - 10
*Trapezites, *Hüb* - - 7

SPECIES.

aeluropis, *Meyr.* - - 7
agna, Moore - - - 69
agraulia, Hew. - - 56
albifascia, Misk - - 70
albifascia, Moore - - 71
alexis, Moore - - 78
alix, Plotz - - - 53
alysos, Moore - - 71
amalia, *Semp.* - - 80
ancilla, *Herr-Sch.* - - 81
Andersoni, *Kirby* - - 23
angustula, *Herr-Sch.* - 61
argenteo-ornatus, *Hew.* - 46
argeus, *Plotz.* - - 82
argina, *Plotz.* - - 83
arsenia, *Plotz.* - - 33
atralba, *Tepp.* - - 28
atrax, *Mab.* - - - 84
atromacula, Misk - - 26
augiades, *Feld.* - - 85
augias, *Linn.* - - 59
australensis, *Mab.* - - 86
autoleon, Misk - - 63
bambusæ, *Moore* - - 60
bathrophora, *n.sp.* - - 39
beata, *Hew.* - - - 2
bifasciata, *Tepp.* - - 87
bilunata, *Butl.* - - 73
caristus, Hew. - - 1
cœsina, *Hew.* - - 70
celæno, Cox - - - 53
chaostola, *Meyr.* - - 22
chaya, Moore - - - 69
chromus, *Cr.* - - - 78
chrysotricha, *n.sp.* - - 15
chryszona, Semp. - - 62
clavata, Staud. - - 71
colaca, Moore - - 87A
comma, Kirby - - 51
compacta, *Butl.* - - 34
contempta, *Plotz.* - - 88
critomedia, *Guer.* - - 1
croceus, *Misk* - - 36
croites, *Hew.* - - 43
crypsargyra, *Meyr.* - - 14
crypsigramma, *n.sp.* - - 38
cyclospila, *n.sp.* - - 20
cynone, *Hew.* - - 49
curvifascia, Feld. - - 71
dactyliota, Meyr. - - 28
denitza, *Hew.* - - 3
dirphia, *Hew.* - - 16
discolor, *Feld.* - - 75
dispar, *Kirby* - - 24
doclea, Hew. - - - 33
Doleschalii, *Feld.* - - 79
dolon, *Plotz.* - - 89
dominula, *Plotz.* - - 17
donnysa, *Hew.* - - 21
Doubledayi, *Feld.* - - 29
drachmophora, *Meyr.* - 18
eaclis, *Mab.* - - - 90
eclipsis, Butler - - 26
eliena, Hew - - - 42
exclamationis, *Fab.* - - 72
extranea, *Plotz.* - - 91
Feisthamelii, *Bdv.* - - 71
flammeata, *Butl.* - - 26
flavovittata, *Latr.* - - 54
forulus, Hüb - - 72
fulgida, *Misk.* - - 68
fuliginosa, *Misk.* - - 67
fumosa, Guest. - - 53
gamelia, Misk. - - 6
gracilis, *Tepp.* - - 49
halyzia, *Hew.* - - 8
haslia. *Swinh.* - - 73
heteromacula, *n. sp.* - - 40
humilis, Misk. - - 31
hurama, *Butl.* - - 77
iacchus, *Fabr.* - - 42A
idothea, *Misk.* - - 25

impar, *Mab.* - - 92
indusiata, *Mab.* - - 93
ismene, *Newm.* - - 31
ismenoides, Mab. - - 66
janetta, *Butl.* - - 6
Julianus, Latr. - - 69
Kochii, Feld. - - - 33
Kreftii, Macleay - - 59
ladon, Cr. - - - 72
lagon, *Mab.* - - - 94
lascivia, *Rosen* - - 55
Leachii, Feld. - - 29
leucopogon. *Mab.* - - 95
leucostigma, *n.sp.* - - 30
lucescens, *Lucas* - - 74
lugubris, *Bdv.* - - 76
lutea, *Tepp.* - - - 45
Macleayi, *Plotz.* - - 63
maheta, *Hew.* - - 44
Malayana, Feld. - - 78
marnas, *Feld.* - - 57
Mastersi, *Waterh.* - - 11
mathias, *Fab.* - - 69
megalopis, Meyr. - - 41
melissa, *Mab.* - - 96
mencia, Moore - - 69
minimus, Misk. - - 53
monticolæ, *Oll.* - - 19
munionga, *Oll.* - - 12
neocles, *Mab.* - - 97
nox, *Mab.* - - - 98
nycteris, *Meyr.* - - 52
odix, *Bdv.* - - - 1
ohara, *Plotz.* - - - 58
olivescens, *Herr-Sch.* - 65
ornata, *Leach* - - 10
palmarum, *Moore* - 62
papyria, *Bdv.* - - 53
paraphaës, *n.sp.* - - 48
parvulus, Plotz. - - 31
perornata, *Kirby* - - 9
Perronii, *Latr.* - - 33
petalia, *Hew.* - - 41
phigalia, *Hew.* - - 50
phillyra, Misk - - 50
phineus, *Cr.* - - - 99
phlœa, Plotz. - - 50
picta, *Leach* - - - 13
porphyropis, *n.sp.* - - 4
praxedes, Plotz. - - 42
pyrhias, Mab. - - 60
quadrimaculata, Tepp. - 16
rectivitta, *Mab.* - - 100
repanda, *Feld.* - - 5
restricta, Moore - - 71
Rietmanni, *Semp.* - - 101
satulla, *Mab.* - - 102
saxula, *Mab.* - - 103
scepticalis, Rosen - - 34
senta, *Misk* - - - 35
sexguttata, *Herr-Sch.* - 32
sigida, *Mab* - - - 104
sperthias, *Feld.* - - 64
sphenosema, *n.sp.* - - 47
sunias, *Feld.* - - - 56
symmomus, *Hüb.* - - 42
Tasmanicus, *Misk* - - 51
thrax, Led. - - - 69
thymbron, Feld. - - 72
trimaculata, Tepp. - - 16
tymbophora, *n.sp.* - - 27
tyrrhus, *Mab.* - - 105
ulama, *Butl.* - - - 66
vallio, *Mab.* - - - 106
volux, Mab. - - - 71
vulpecula, Prittw. - 5
Walkeri, Heron - - 56
xanthomera, *n.sp.* - - 37

Descriptions of New Species of Fossil Mollusca from the Miocene Limestone near Edithburg.

(Including Notes by the Late Professor Ralph Tate.)

By Herbert Basedow.

[Read June 3, 1902.]

Plate II.

On July 2, 1901, I read, at a meeting of this Society, a paper "On the Occurrence of Miocene Limestones at Edithburg, &c.," containing in an appendix a list of fossil mollusca, some of which were marked as new species, with MS. names.

The late Professor Ralph Tate had kindly promised to describe the new species I had obtained from this neighborhood, but owing to his lamented death this promise was but partially fulfilled. In this paper I submit descriptions of the species marked as new in that appendix, which include (where indicated) the work of the late Professor as far as he had advanced up to the time of his death.

Campanile triseriale, spec. nov. Pl. ii., fig. 1.

Shell large, solid, tapering; about 14 flattened whorls, rapidly widening anteriorly; constricted at the suture.

The characteristic ornamentation of the whorls consists of three well-defined, elevated, coarsely-granulose ribs, the posterior of which being the most coarsely and the median the least coarsely granulose. The obliquity of the granulations of the respective ribs varies from almost nil in the posterior rib (the granules being approximately circular in section) to about half a right angle in the anterior rib (the granules narrowly oval). The interspaces between the granular ribs are in general ornamented by a set of fine, equally strong spiral threads, while the space between the anterior and median ribs is conspicuously divided by a very much stronger thread. Base flattened, angulated at the edge and finely decorated by successive lines of growth. Aperture and apex fractured.

Dimensions of Type.—Length, 85 mm. (apex wanting); breadth, 33 mm.

Locality.—Subcrystalline miocene limestone near Edithburg; also miocene limestone at Hallett's Cove.

Remarks.—In general shape of whorls and outline this fossil species comes near to large examples of *C. laeve*, Q. and G., now living in Western Australian waters, although the two very distinctive ornamentations are hardly comparable.

In the Catalogue of Tertiary Mollusca of the British Museum, part I, p. 228, Mr. G. F. Harris, F.G.S., writes: "Cast of a large species of *Cerithium*, probably referable to the subgenus *Campanile* from Kadina, South Australia." This species mentioned by Mr. Harris will no doubt be referable to *C. triseriale.*

MERETRIX SPHERICULA, spec. nov. Pl. ii., fig. 2.

Shell solid, triangularly orbicular, slightly inequilateral, a little wider than high. Surface ornamented with rather coarse, irregular lines of growth and fine concentric threads, and also (more distinctly visible on the partially denuded portions) by faint radial striæ. Umbones small, depressed, curved over towards the front, apparently somewhat oblique. Lunule prominent, lanceolate. Ventral margin smooth and regularly curved. Both valves much inflated and regularly convex, thus effecting, with united valves, a globose, more or less spherical appearance. Interior unknown.

Dimensions of Type.—Antero-posterior diameter 74, umbo-ventral diameter 67, sectional diameter of united valves 50 millimeters.

Locality.—Subcrystalline miocene limestone about Edithburg.

Large, imperfect casts, referable to this species, as large as 95 millimeters antero-posterior, and 91 umbo-ventral diameter, have also been found in the miocene cliffs at Aldinga Bay and Hallett's Cove.

CARDIUM MEDIOSULCATUM (Tate and Basedow), spec. nov. Pl. ii., fig. 3.

Cardium rotundly oval, a little higher than wide, moderately convex, equilateral and equivalve. Umbos central, approximate, depressed. Surface ornamented with from 33 to 37 elevated, truncated ribs, narrower than the interspaces (3 in a width of 5 mm. in medio-ventral area). Ribs with a medio sulcus, here and there interrupted by obsolete, depressed,

vaulted scales. Interspaces flat, twice as wide as the ribs, traversed by curved imbricating lamellæ.

Interior unknown.

Dimensions of Type.—Antero-posterior diameter 40, umbo-ventral diameter 41, sectional diameter of united valves 25 millimeters.

Locality.—Subcrystalline miocene limestone near Edithburg, Yorke's Peninsula.

Remark.—Whether the presence of a medio-sulcus in the ribs can be ascribed to a primary characteristic of the mollusc or to a feature subsequently produced by fossilization remains to be proved.

CARDITA DENNANTI (Tate and Basedow), spec. nov. Pl. ii., fig. 4.

Shell ovately triangular, transverse, inequilateral, moderately solid; umbos prominent, obtuse, antemedian, incurved. Post-dorsal margin inclined, antero-dorsal margin cordate.

Surface ornamented with 23 wide truncated ribs (1 mm. wide in medio-ventral area), which are plain and slightly margined at the sides. The intervening flat furrows, narrower than the ribs, are traversed by somewhat distant, transverse threads, which cross the ribs.

Dimensions of Type.—Antero-posterior diameter 13; umbo-ventral diameter 11 mm.

Locality.—Subcrystalline miocene limestone near Edithburg, Yorke's Peninsula.

Imperfect specimens of this species have also been found in the miocene limestone at Hallett's Cove.

The species is named after J. Dennant, Esq., Camberwell, in recognition of invaluable palæontological services rendered.

GLYCIMERIS SUBRADIANS (Tate), spec. nov.

This species is of same general outline as *G. radians*, Lk., but differs by being flatter and having its radial ribs more acutely elevated, the interspaces being as wide. The radial ornamentation, moreover, is obsolete on the lateral slopes.

Locality.—Common in the miocene limestone at Hallett's Cove; also in the subcrystalline miocene limestone near Edithburg.

DESCRIPTION OF PLATE II.

Figure 1. *Campanile triseriale*, spec. nov.
" 2. *Meretrix sphericula*, spec. nov.
" 3. *Cardium mediosulcatum* (Tate and Basedow), spec. nov.
" 4. *Cardita Dennanti* (Tate and Basedow), spec. nov.

(All figures of natural size).

Descriptions of New Species of Lepidoptera (Œcophoridæ).

By E. Meyrick, B.A., F.Z.S.

[Read July 1, 1902.]

When I issued my paper on Australian *Œcophoridæ* (Proc. Linn. Soc., N.S.W., 1882-1888) I excluded from consideration certain small groups of genera which I at that time thought capable of being maintained as separate families. Subsequent investigations have led me (as shown in my "Handbook of British Lepidoptera) to prefer to treat them as more or less aberrant portions of the same family, and I, therefore, now describe the Australian genera and species of those groups, and also take the opportunity of dealing at the same time with some undescribed species of the other genera of the family, with which I have become acquainted since the publication of my paper. In addition to these, Mr. O. Lower and Dr. A. J. Turner have described a considerable number of fresh species, of many of which I possess types through the liberality of these gentlemen. Of these I will only say at present that they appear to me to be in general well grounded and efficiently described.

The order of genera here followed is that which (in accordance with the principles of my handbook) I should now use to express their affinities. My views on the affinities themselves have undergone little change, the difference being one of the mode of expression only.

MACHÆRITIS, Meyr.

Machæritis pelinopa, n. sp.

Male, 11-13 mm. Head and thorax pale whitish-ochreous. Palpi ochreous-whitish, second joint externally sprinkled with dark fuscous. Antennæ ochreous-whitish, ringed with dark fuscous. Abdomen whitish-ochreous. Legs dark fuscous, ringed with ochreous-whitish, hairs of posterior tibiæ pale whitish-ochreous. Forewings elongate, narrow, costa moderately arched, apex pointed, termen very obliquely rounded; whitish-ochreous, more or less irrorated with fuscous (in one specimen very slightly); cilia pale whitish-ochreous, towards base sprinkled with fuscous. Hindwings grey, lighter anteriorly; cilia whitish-grey-ochreous.

Launceston, Deloraine, and Hobart, Tasmania, from November to January; three specimens. Intermediate between *M. indocta* and *ægrella*, differing from both by entire absence of stigmata.

Machæritis naias, n. sp.

Male, 11 mm. Head and thorax white. Palpi white, second joint externally dark fuscous. Antennæ grey. Abdomen grey, anal tuft whitish-ochreous. Legs dark fuscous, hairs of posterior tibiæ whitish-ochreous. Forewings elongate, narrow, costa moderately arched, apex acute, termen extremely obliquely rounded; white; extreme costal edge dark fuscous basally; markings pale brownish irrorated with dark fuscous; stigmata moderate, round, plical directly beneath first discal, second discal confluent with a small terminal spot beyond tornus to form a bar; a small dorsal spot before tornus; some scattered dark scales in disc between these markings; two small spots (tending to be obsolescent) on costa towards apex; cilia white, partially sprinkled with dark fuscous. Hindwings pale grey; cilia whitish.

Mount Crackenback (Kosciusko Range), New South Wales, at 4,700 ft., in January; one specimen.

Allied to *M. melanospora* and *samphoras*, but quite distinct.

OCYSTOLA, Meyr.

Ocystola polemistis, n. sp.

Male, 11 mm. Head shining bronzy. Palpi rather long, ochreous-yellowish, terminal joint externally dark fuscous, three-fifths of second. Antennæ yellowish, ringed with dark fuscous, ciliations $2\frac{1}{2}$. Thorax dark bronzy-fuscous, tips of patagia yellow. Abdomen dark fuscous, anal tuft yellowish. Legs dark fuscous, ringed with yellowish, hairs of posterior tibiæ yellowish. Forewings elongate, slightly dilated posteriorly, costa gently arched, apex round-pointed, termen hardly rounded, rather strongly oblique; orange-yellow; a narrow dark fuscous costal streak from base, confluent with a large dark purplish-fuscous patch occupying terminal half of wing, its anterior edge convex and running from middle of costa to three-fifths of dorsum; cilia dark purplish-fuscous, beneath apex with an ochreous patch. Hindwings and cilia dark fuscous; 3 and 4 connate.

Brisbane, Queensland; one specimen. Allied to *O. placoxantha* and *mesoxantha*. Differs from the former by the absence of the posterior yellow spot, from the latter by the dark fuscous costal streak, from both by the strongly convex edge of terminal dark patch.

Ocystola misthota, n. sp.

Female, 13 mm. Head and palpi whitish-ochreous, palpi long, terminal joint almost 1. Antennæ grey. Thorax bronzy-fuscous. Abdomen broken. Legs whitish-ochreous, partially suffused with bronzy-fuscous. Forewings elongate, somewhat narrowed posteriorly, costa moderately arched, apex pointed, termen very obliquely rounded; yellow; markings rather dark fuscous, faintly purplish-tinged; a costal streak from base to near middle, extended at base to dorsum, apex attentuated, not quite reaching posterior patch; a large patch occupying terminal half of wing, its anterior edge straight and running from middle of costa to middle of dorsum; cilia rather dark fuscous. Hindwings coppery-fuscous, darker towards apex; cilia rather dark coppery-fuscous; 3 and 4 connate.

Sydney, New South Wales, in February (G. H. Raynor); one specimen.

Allied to *O. placoxantha* and the preceding, but characterised by the pale head, long terminal joint of palpi, costal streak not reaching band, &c.

Ocystola chrysopis, n. sp.

Male, 12-13 mm. Head orange. Palpi long, dark fuscous, second joint orange-yellow internally and on apical half externally, terminal joint almost 1. Antennæ dark fuscous, ciliations $2\frac{1}{2}$. Thorax and abdomen dark fuscous. Legs yellow, tarsi and anterior and middle tibiæ mostly dark fuscous above. Forewings elongate, narrow, costa moderately arched, apex round-pointed, termen very obliquely rounded; orange; markings dark purplish fuscous; a rather broad costal streak from base to middle, extended at base to dorsum, posteriorly attenuated and finely connected with posterior patch; a small spot representing first discal stigma, confluent above with costal streak; a large patch occupying terminal half of wing, its anterior edge slightly convex, and running from just beyond middle of costa to three-fifths of dorsum, enclosing a few yellow scales in disc at two-thirds; cilia dark fuscous, on termen yellow, basal third blackish. Hindwings dark coppery-fuscous, rather lighter anteriorly; cilia dark fuscous, with a basal blackish shade; 3 and 4 connate.

Sydney, New South Wales, in November and April (G. H. Raynor, G. Lyell); two specimens.

Near the preceding, but distinguished from all the allied species by the projection from the costal streak, representing first discal stigma, and the orange head.

Ocystola æthopis, n. sp.

Male, 11-14 mm. Head grey, slightly reddish-tinged. Palpi moderately long, fuscous, terminal joint almost 1. Antennæ fuscous, ciliations (5). Thorax brown. Abdomen fuscous. Legs rather dark fuscous, hairs of posterior tibiæ ochreous-grey-whitish. Forewings elongate, moderate, costa gently arched, apex round-pointed, termen very obliquely rounded; dull brown, slightly reddish-tinged, especially on costal edge; stigmata large, darker, very cloudy and ill-defined, plical obliquely beyond first discal; termen very obscurely darker suffused; cilia dull brown, with an obscure, sometimes obsolete, patch of ochreous suffusion towards tips beneath apex. Hindwings and cilia rather dark grey; 3 and 4 connate.

Gisborne, Victoria, in October and March (G. Lyell); two specimens.

Nearly allied to *O. acroxantha*, but conspicuously darker throughout, and without the yellow cilia of that species.

Ocystola holoxantha, n. sp.

Male, 14 mm. Head, palpi, and thorax bright yellow; palpi rather short, terminal joint two-thirds. Antennæ grey, towards base anteriorly white, ciliations (5). Abdomen grey, mixed with ferruginous, segmental margins whitish. Legs dark grey, hairs of posterior tibiæ whitish. Forewings elongate, moderate, costa moderately arched, apex round-pointed, termen extremely obliquely rounded; bright clear golden-yellow; cilia yellow. Hindwings pale grey, darker posteriorly; cilia yellowish-grey-whitish; 3 and 4 connate.

Closely related to *O. malacella*, but immediately distinguished by the grey hindwings (in *malacella* these are ochreous-whitish, without any grey tinge).

Bathurst, New South Wales, in November; one specimen.

HESPEROPTILA, n. g.

Head smooth-scaled, side tufts loosely spreading; tongue developed. Antennæ three-fourths, in male moderately ciliated (1), basal joint moderate, with pecten. Labial palpi moderately long, recurved, second joint not reaching base of antennæ, somewhat roughened beneath, terminal joint somewhat shorter than second, moderate, acute. Thorax smooth-scaled. Posterior tibiæ clothed with long hairs above. Forewings: 2 from near angle of cell, 7 and 8 stalked, 7 to termen; surface with tufts of raised scales. Hindwings almost 1, elongate-ovate, cilia 1; 3 and 4 connate.

Only differs from *Coesyra* by the raised scale tufts of forewings. It may be regarded as a derivative of the earlier forms of that genus, and placed next *Heterozyga*.

Hesperoptila arida, n. sp.

Male, 13 mm. Head and thorax grey-whitish irrorated with fuscous. Palpi white, second joint irrorated with dark fuscous except at apex and on a supramedian ring, terminal joint with supramedian band of dark fuscous irroration. Antennæ grey. Abdomen whitish-ochreous. Legs whitish, irrorated with dark fuscous except at apex of joints, hairs of posterior tibiæ white. Forewings elongate, rather narrow, costa moderately arched, apex acute, termen extremely obliquely rounded; grey-whitish, suffusedly irrorated with brown and irregularly sprinkled with dark fuscous; a spot of irroration on fold at one-fourth; stigmata dark fuscous, first discal and plical forming raised tufts, plical slightly beyond first discal, second discal small; cilia whitish, sprinkled with brownish-ochreous and dark fuscous. Hindwings ochreous-whitish, obscurely infuscated except towards base; cilia ochreous-whitish, basal half more ochreous-tinged.

Carnarvon, West Australia, in October; one specimen.

CŒRANICA, Meyr.

Cœranica antichroma, n. sp.

Male, 19 mm. Head and thorax orange-yellow, face dark fuscous. Palpi dark fuscous, above whitish. Antennæ dark fuscous, above towards base white. Abdomen and legs dark fuscous, hairs of posterior tibiæ paler and yellowish-tinged. Forewings elongate, costa moderately arched, apex obtuse, termen obliquely rounded; deep yellow; cilia ochreous-yellow. Hindwings dark fuscous; cilia ochreous, base mixed with grey.

Healesville, Victoria (J. A. Kershaw); one specimen. The absence of markings at once distinguishes this from the other two species of the genus.

PSALTRIODES, n. g.

Head smooth; tongue developed. Antennæ five-sixths, in male biciliated with very long fascicles (7), basal joint short, stout, with partial pecten. Labial palpi short, subascending, second joint only reaching middle of face, with short rough projecting scales beneath, terminal joint very short, less than half second, slender, acute. Thorax smooth. Forewings: 2 from angle of cell, 7 and 8 stalked, 7 to termen. Hindwings 1, elongate-ovate, cilia one-half; 3 and 4 connate.

Allied to *Aristeis*, from which it appears to be sufficiently distinguished by the rough scales of second joint of palpi, and antennal pecten.

PSALTRIODES THRIAMBIS, n. sp.

Male, 14 mm. Head, thorax, and abdomen bronzy-fuscous, segmental margins yellowish. Palpi white, second joint externally yellowish-tinged. Antennæ dark fuscous. Legs dark fuscous, ringed with yellow-whitish (posterior pair broken). Forewings elongate, slightly dilated, costa somewhat bent towards base and towards apex, apex round-pointed, termen straight, oblique; bronzy-fuscous, evenly irrorated with whitish and irregularly sprinkled with blackish; stigmata blackish-fuscous, plical directly beneath first discal; an indistinct curved subterminal series of blackish-fuscous dots, indented beneath costa; cilia rather dark fuscous, basal half fuscous-whitish, with a dark fuscous basal line. Hindwings orange; a terminal dark fuscous fascia, dilated at apex so as to occupy two-fifths of wing; cilia fuscous, with a dark fuscous basal line.

Duaringa, Queensland, in August (G. Barnard); one specimen.

ARISTEIS, Meyr.

ARISTEIS HEPIALELLA, Walk.

(*Oecophora hepialella*, Walk., Cat. Tin., 1033.)

Townsville, Queensland; bred by Mr. F. P. Dodd. I possess a specimen by the kindness of Dr. A. J. Turner, who will redescribe it.

CŒSYRA, Meyr.

CŒSYRA KERSHAWI, Low.

(*Cœsyra Kershawi*, Low., Trans. Roy. Soc., South Austr., 1893, 293.)

Male and female, 16-19 mm. Head yellow. Palpi yellow, base dark fuscous. Antennæ fuscous. Thorax shining dark purplish-fuscous, posterior extremity yellow. Abdomen rather dark fuscous. Legs dark fuscous ringed with whitish-ochreous, hairs of posterior tibiæ whitish-yellowish. Forewings elongate, moderate, costa gently arched, apex obtuse, termen slightly sinuate, oblique; bright deep yellow; base narrowly purple-fuscous, outer edge vertical; a dark fuscous mark along costa at one-third; a large terminal purple-fuscous patch, becoming dark fuscous on edges, anterior edge from three-fifths of costa to two-thirds of dorsum, bisinuate, enclosing a small suffused yellow costal spot near anterior edge;

cilia fuscous, basal half mixed with dark fuscous. Hindwings bronzy-fuscous, darker posteriorly; cilia bronzy-fuscous.

I describe this species here as some of the characteristic points are omitted in Lower's description. I have received authentic types from Mr. A. J. Kershaw, the original captor, and also took the species myself at Glen Innes (3,500 ft.), New South Wales, in December. It is well distinguished from *C. dichroella* by the dark fuscous costal mark at one-third, yellow costal spot in terminal band, and absence of yellow patch in terminal cilia.

Cœsyra mimopa, n. sp.

Male, 16 mm. Head ochreous-yellow. Palpi ochreous-yellow, lower half of second joint dark fuscous. Antennæ dark fuscous. Thorax dark purplish fuscous. Abdomen fuscous. Legs dark fuscous, posterior tibiæ ochreous-yellowish. Forewings elongate, costa moderately arched, apex obtuse, termen obliquely rounded; shining ochreous-yellow; base narrowly rather dark fuscous, shortly produced on costal edge; a dark fuscous-purple terminal fascia, anterior edge running from six-sevenths of costa to before tornus, bisinuate; cilia shining fuscous. Hindwings bronzy-fuscous; cilia fuscous.

Halbury, South Australia, in February (E. Guest); one specimen. May be placed between *C. seleniaca* and *C. isogramma*, but by no means closely approaching either, the peculiar form of the terminal fascia being characteristic.

Cœsyra colonæa, n. sp.

Male, 18 mm. Head and thorax ochreous-yellow, shoulders dark fuscous. Palpi dark fuscous, terminal joint whitish. Antennæ fuscous. Abdomen pale grey, anal tuft pale yellowish. Legs dark grey, hairs of posterior tibiæ whitish-yellowish. Forewings elongate, costa gently arched, apex round-pointed, termen extremely obliquely rounded; pale ochreous-yellow, slightly infuscated posteriorly; base of costa dark fuscous; cilia pale ochreous-yellow. Hindwings grey; cilia ochreous-whitish, faintly greyish-tinged round apex.

Bathurst, New South Wales, in November; one specimen.

Closely allied to *C. panxantha*, but distinguished by the grey hindwings. It therefore bears exactly the same relation to *C. panxantha* that *Ocystola holoxantha* (from the same locality) does to *O. malacella*.

Cœsyra microstictis, n. sp.

Male, 11 mm. Head and thorax whitish-ochreous, shoulders narrowly irrorated with dark fuscous. Palpi whitish,

second joint externally yellowish, basal three-fifths dark fuscous. Antennæ grey. Abdomen whitish-ochreous. Legs fuscous, ringed with ochreous-whitish, hairs of posterior tibiæ ochreous-whitish. Forewings elongate, costa moderately arched, apex round-pointed, termen very obliquely rounded; whitish-ochreous; basal one-fourth of costa suffused with dark fuscous; stigmata small, black, plical slightly beyond first discal; a small black prætornal dot beneath second discal; an angulated subterminal series of minute black dots close to termen and apical one-third of costa; cilia whitish-ochreous, with a few blackish points. Hindwings whitish-grey; cilia ochreous-whitish.

Bathurst, New South Wales, in March; one specimen.

Allied to *C. arenivaga*, but differing by the hardly obliquely placed plical stigma and additional prætornal dot and subterminal series.

Cœsyra discincta, Meyr.

(*Gelechia strophiopeda*, Low., Trans. Roy. Soc., S. Austr., 1894, 105, is a synonym of this. I have seen the type. The groundcolor should be described as whitish-ochreous, my examples being somewhat faded.)

Atheropla, Meyr.

Atheropla chorias, n. sp.

Male, 13 mm. Head and thorax ochreous-yellow, shoulders fuscous. Palpi ochreous-yellow, second joint fuscous except towards apex. Antennæ pale ochreous. Abdomen grey. Legs dark fuscous, posterior pair grey-whitish. Forewings elongate, slightly dilated, costa moderately arched, apex rounded, termen very obliquely rounded; deep ochreous-yellow, with a few fuscous scales; base of costa dark fuscous; stigmata blackish-fuscous, plical obliquely beyond first discal, an additional dot above and between two discal, second discal larger; a broad rather dark fuscous terminal fascia, anterior edge suffused, with a projection touching second discal stigma beneath, enclosing a terminal series of small suffused ochreous-yellow spots; cilia fuscous, suffusedly pale yellowish towards tips beneath apex. Hindwings rather dark fuscous; cilia fuscous.

Sydney, New South Wales, in October (G. H. Raynor); one specimen. The dark fuscous hindwings and terminal fascia of forewings, and the additional median dot, separate this species at once.

PELTOSARIS, n. g.

Head smooth; tongue developed. Antennæ five-sixths, in male with very long ciliations (7), basal joint moderate, without pecten. Labial palpi very long, recurved, second joint exceeding base of antennæ, clothed with dense scales expanded into tuft beneath towards apex, terminal joint almost as long as second, slender, acute. Thorax smooth. Forewings: 7 and 8 stalked, 7 to termen. Hindwings under 1, elongate-ovate, cilia three-fourths; 3 and 4 connate.

Allied to *Hypercallia*, of which it may be regarded as a development, differing essentially by the tufted second joint of palpi.

Peltosaris triplaca, n. sp.

Male, 13-14 mm. Head ochreous-yellowish, sometimes centrally infuscated. Palpi ochreous-yellowish, second joint with broad oblique dark fuscous band, terminal joint dark fuscous. Antennæ yellowish, ringed with dark fuscous. Thorax dark fuscous, collar and patagia ochreous-yellow. Abdomen dark fuscous. Legs dark fuscous, ringed with yellowish (posterior pair broken). Forewings elongate, costa moderately arched, apex round-pointed, termen hardly rounded, very oblique; ochreous-yellow; edge of costa at base dark fuscous; three broad connected dark fuscous fasciæ, first from dorsum before middle to middle of costa, sending a projection near dorsum to base, second connecting upper end of first with lower end of third, third terminal; cilia dark fuscous, on termen ochreous-yellow except at base. Hindwings and cilia dark fuscous.

Katoomba, New South Wales, in November (G. Lyell); two specimens.

HYPERCALLIA, Steph.

This names supersedes *Peltophora*, Meyr.

Hypercallia trichroa, n. sp.

Male, 14 mm. Head ochreous-yellow. Palpi light ochreous-yellow, lower half of second joint dark fuscous. Antennæ dark fuscous, ciliations (9). Thorax dark purplish-fuscous. Abdomen dark fuscous, anal tuft yellowish. Legs dark fuscous, middle tarsi yellowish-ringed, posterior legs ochreous-yellowish, banded with fuscous. Forewings elongate, costa moderately arched, apex pointed, termen almost straight, oblique; dark fuscous, somewhat mixed with whitish-ochreous; two ochreous-whitish fasciæ, first at one-fourth, narrowed towards costa, very broad dorsally, second from two-thirds of

costa to tornus, dilated posteriorly in middle and on costa, enclosing a dark fuscous transverse mark in disc; a whitish-ochreous streak along upper two-thirds of termen; cilia dark fuscous, beneath tornus yellow. Hindwings bright orange; apical one-fifth dark fuscous; a narrow dorsal patch mixed with dark fuscous; cilia dark fuscous.

Yale Paddock, South Australia, in March (E. Guest); one specimen.

Allied to *H. helias*, from which it differs, besides distinctions of color, by the shorter palpi and much longer antennal ciliations.

PHILOBOTA, Mer.

Philobota argyraspis, Low.

(*Cœsyra argyraspis*, Low., Trans. Roy. Soc., S. Astr., 1897, 54.)

Male and female, 14-15 mm. Head orange. Palpi orange, irrorated with dark fuscous. Antennæ fuscous. Thorax orange-tawny, patagia pale ochreous posteriorly. Abdomen light yellowish. Legs white, banded beneath with dark fuscous, hairs of posterior tibiæ whitish-yellowish. Forewings elongate, moderate, costa moderately arched, apex round-pointed, termen hardly rounded, oblique; tawny-orange; markings shining snow-white, more or less edged with dark fuscous suffusion; a costal streak from near base to near apex, extremities attenuated; a slender subdorsal streak throughout, continued along termen to apex; a median longitudinal series of three rather large spots, first elongate, second oval, third subtriangular; beneath second a small additional spot; cilia fuscous-whitish, basal half orange mixed with dark fuscous. Hindwings fuscous, lighter anteriorly; cilia fuscous-whitish, basal half mixed with fuscous.

Duaringa, Queensland, in October and November (G. Barnard); five specimens.

Lower's type was from Bulimba.

Related generally to the *trijugella* group, but very distinct.

PYRGOPTILA, Meyr.

Pyrgoptila zelotis, n. sp.

Male, 20 mm. Head, palpi, antennæ, and thorax whitish-ochreous mixed with dark fuscous. Abdomen ochreous, segmental margins whitish-ochreous. Legs dark fuscous, ringed with whitish-ochreous, hairs of posterior tibiæ whitish-ochreous. Forewings elongate, costa anteriorly moderately, posteriorly gently arched, apex obtuse, ter-

men very obliquely rounded; fuscous, irregularly sprinkled with whitish and dark fuscous; a curved dark fuscous subbasal line; a cloudy dark fuscous transverse line at one-third, preceded by large ochreous-mixed tufts above and below middle, forming the posterior edge of a circular depression, which is pale surrounded with dark fuscous; two white dots consecutively placed in disc beyond middle, and an irregular white transverse bar from disc, beyond middle to dorsum; a large discal tuft of light ochreous scales beyond this; a strongly curved ochreous line from a white spot on costa at three-fourths to tornus, lower half spotted with white, preceded and followed by dark fuscous suffusion; cilia brownish, base sprinkled with dark fuscous. Hindwings fuscous, lighter basally; cilia light brownish.

Queensland, probably, but locality not recorded (A. Simson); one specimen.

The locality of the only other species of the genus, *P. serpentina*, Meyr., was accidentally omitted from the original description; I took it at Perth, West Australia, in November.

TORTRICOPSIS, Newm.

This generic name must be adopted in place of *Palparia*, Wing, the name *Palparia* was pre-occupied in the *Lepidoptera* by Haworth.

Tortricopsis pyroptis, n. sp.

Male and female, 19-22 mm. Head and thorax red-brown, more or less suffused with ashy-whitish. Palpi dark fuscous irrorated with whitish, lower two-thirds of second joint red-brown, tuft medorate, forming an equilateral triangle, terminal joint longer than second. Abdomen ochreous-yellow, beneath deeper ochreous and rosy-tinged. Forewings moderate, suboblong, costa strongly arched anteriorly, apex obtuse, termen sinuate, rather oblique; red-brown, mixed with grey, and anteriorly more or less suffused with grey-whitish; two short fine oblique blackish streaks from costa about one-fourth; two indistinct blackish-grey dots above middle of disc, appearing a continuation of the second streak; cilia red-brown, mixed with blackish-grey, extreme tips grey-whitish. Hindwings deep ochreous-yellow, towards apex tinged with brown-reddish and sprinkled with dark grey; cilia light brown-reddish mixed with dark grey except towards tornus.

Brisbane, Queensland; Melbourne and Healesville, Victoria; in January (J. A. Kershaw, A. J. Turner); seven specimens.

Nearest to *T. semijunctella*, but quite distinct. Mr. Kershaw has bred it from *Eucalyptus*.

TORTRICOPSIS CALLICHROA, n. sp.

Female, 22 mm. Head whitish-ochreous. Palpi with second joint ochreous-brown, becoming whitish-ochreous towards base, tip whitish, tuft short, triangular, terminal joint white, in front and towards apex grey. Thorax rosy-ochreous-grey, inner edge of patagia whitish. Abdomen grey. Forewings elongate, costa moderately arched, apex acute, subfalcate, termen concave, rather strongly oblique; brownish-ochreous, apical half suffused with rosy-pink; base of wing and of dorsum narrowly white, edged posteriorly with rosy-pink suffusion, an oblique ochreous-white streak from one-sixth of costa to below middle of succeeding fascia, edged anteriorly with a few blackish scales and posteriorly with rosy-pink suffusion; an irregular median fascia of white suffusion, forming a triangular blotch on costa, anterior edge running from one-third of costa to middle of disc, thence sharply angulated backwards and again forwards to beyond middle of dorsum, edged with some blackish scales, posterior edge very irregular and undefined; an elongate dark fuscous mark mixed with white in disc above middle; some dark fuscous suffusion above dorsal end of median fascia; a slender slightly sinuate white streak from three-fifths of costa to tornus, dilated on costa, edged anteriorly with blackish, preceded by dark grey suffusion; a short longitudinal white streak above apex; a dark fuscous suffusion along lower half of termen; cilia whitish-ochreous, pinkish-tinged, base whitish-suffused on lower half of termen. Hindwings grey; cilia whitish-grey.

Sheringa, South Australia, in October (E. Guest); one specimen.

May be placed next *T. falcifera*, but is widely distinct from it or anything else.

TORTRICOPSIS EUSARCA, n. sp.

Female, 14 mm. Head pale whitish-ochreous. Palpi whitish, tuft broad, very short, brush-like, rosy-tinged, terminal joint one-third. Thorax pale greyish-rosy. Abdomen grey. Forewings elongate, moderate, costa gently arched, apex round-pointed, termen rather strongly oblique, rounded beneath; light rosy-pink, mixed with light-grey; a dark fuscous streak along basal third of dorsum; a longitudinal dark fuscous streak, edged above with whitish, in disc before and below middle, and another in disc above middle; a reddish-fuscous spot above tornus, preceded by some whitish suffusion; a whitish apical bar, margined above and beneath by reddish-fuscous spots; cilia whitish, base pinkish-tinged, with reddish-

fuscous basal spots above and below apex. Hindwings grey; cilia whitish-grey.

Quorn, South Australia, in October; one specimen.

The smallest and least conspicuous member of the genus, marked somewhat as *Eclecta aurorella.*

LEPIDOTARSA, Meyr.

Lepidotarsa argyropis, n. sp.

Male, 21 mm. Head and thorax light yellow, variegated with ferruginous. Palpi whitish-yellowish, second joint ferruginous towards apex. Abdomen ochreous-yellowish. Forewings elongate, moderate, costa gently arched, apex round-pointed, termen straight, oblique; light yellow, variegated throughout with ferruginous-red; a fuscous streak along dorsum throughout; a round silvery-white subdorsal spot before middle; a fuscous transverse streak from one-fourth of costa to dorsum before tornus, lower half considerably dilated posteriorly and enclosing a transverse-oval silvery-white spot; discal stigmata fuscous, plical silvery-white, directly beneath first discal, resting on preceding fascia; a small silvery-white spot towards apex; cilia fuscous, coppery-tinged, on costa coppery-reddish. Hindwings and cilia ochreous-yellowish, brassy-tinged, base of cilia towards tornus tinged with dark fuscous.

Sydney, New South Wales, in October (G. H. Raynor); one specimen.

Allied to *L. iriodes* and *L. chryserythra,* but abundantly distinct.

EUPHILTRA, Meyr.

Euphiltra chrysorrhoda, n. sp.

Female, 12 mm. Head and thorax tawny-orange. Palpi ochreous-orange irrorated with dark fuscous, terminal joint whitish. Antennæ dark fuscous. Abdomen whitish-ochreous, segmental margins ochreous-orange. Legs yellow-ochreous, anterior tibiæ suffused with crimson, anterior and middle tarsi banded with dark fuscous. Forewings elongate, costa moderately arched, apex round-pointed, somewhat produced, termen sinuate, very oblique; orange, becoming tawny towards margins; a fine white line from one-fourth of dorsum to middle of disc, edged beneath with tawny suffusion; an indistinct fine whitish inwards-curved transverse line at three-fifths, followed in disc by a straight black transverse mark attenuated downwards, and by a faint pink general suffusion; apex rather broadly suffused with rosy-pink; cilia orange-yellow, at apex with a black spot. Hindwings fuscous, anteriorly paler and

ochreous-tinged; cilia fuscous-whitish, suffused with light dull orange except round apex.

Sydney, New South Wales, in October (G. H. Raynor); one specimen.

This strikingly distinct and ornamental species is a true *Euphiltra*, but in color and markings shows a suggestive affinity to *Tortricopsis*.

HELIOCAUSTA, Meyr.

Heliocausta dorsivittella, Walk.

(*Psecadia dorsivittella*, Walk. Cat. Tin., 538.)

Male and female, 24-28 mm. Head ochreous-whitish, sides sharply dark brown. Palpi whitish, second joint light brownish externally above, with a dark fuscous streak on each side becoming obsolete downwards, terminal joint dark fuscous anteriorly towards apex. Antennæ light fuscous, ciliations in male (2). Thorax fuscous, with a broad central ochreous-whitish stripe, and dark fuscous stripe on each side of it. Abdomen pale yellowish. Legs yellow-whitish, anterior and middle pair banded with fuscous. Forewings elongate, moderate, costa rather strongly arched, apex round-pointed, produced, termen rather strongly concave, somewhat oblique; fuscous, irrorated with grey-whitish, dorsal area broadly darker fuscous, without irroration; extreme costal edge rosy-whitish; an ochreous-whitish dorsal streak from near base to tornus, narrowed to extremities, edged above with some dark ferruginous scales, and beyond middle with a triangular dark ferruginous spot edged with whitish; a very indistinct darker line from two-fifths of costa very obliquely outwards to five-sixths, thence obtusely angulated to tornus; cilia fuscous mixed with whitish, with dark ferruginous basal line mixed with dark fuscous. Hindwings light ochreous-yellow, apex and termen infuscated; cilia light yellowish, towards tips whitish, with a fuscous subbasal line.

Mount Macedon, Victoria (G. H. Raynor); Mount Lofty, South Australia (E. Guest); also from Tasmania; in December, three specimens.

This extremely distinct species does not harmonise well with *Heliocausta*, but I cannot discover any reliable point of generic separation; some affinity with *Tortricopsis* is suggested by the shape of wing, but the palpi do not support this. A weak and fugitive antennal pecten is present.

HOPLITICA, Meyr.

Hoplitica hepatitis, n. sp.

Female, 17 mm. Head and thorax pale ochreous, mixed with purplish-fuscous Palpi whitish, terminal joint dark fuscous anteriorly. Antennæ ochreous-whitish, sharply annulated with blackish. (Abdomen broken.) Legs ochreous-whitish, anterior pair banded with dark fuscous. Forewings elongate, moderate, costa moderately arched, apex obtuse, termen little rounded, oblique; whitish-ochreous, suffusedly irrorated with reddish-ochreous, and on dorsal half with purplish; base narrowly purplish; four moderately broad slightly oblique ill-defined dull crimson-purple fasciæ, first at one-fourth, angulated in middle, second before middle, rather curved, third at two-thirds, broader, slightly curved, fourth terminal, narrowed beneath, not reaching tornus; stigmata cloudy, dark fuscous, plical beneath first discal, both very indistinct, second discal larger, distinct, placed between second and third fasciæ, space above it forming a rather conspicuous light patch; cilia light ochreous-rosy, apical half ochreous-whitish, at apex and tornus grey. Hindwings grey, darker towards apex; cilia grey. Under surface of hindwings pale yellowish along costa.

Gisborne, Victoria, in December (G. Lyell); one specimen.

Allied to *H. rufa* and *H. absumptella*, but distinguished from all by the four purple fasciæ.

EULECHRIA, Meyr.

Eulechria phœnissa, n. sp.

Male, 16 mm. Head whitish-ochreous, yellowish-tinged. Palpi whitish-ochreous, lower half of second joint fuscous. Thorax rather dark coppery-fuscous, posteriorly narrowly whitish-ochreous. Abdomen whitish-ochreous, yellowish-tinged. Forewings elongate, moderate, costa moderately arched, apex obtuse, termen little oblique, rounded beneath; uniform glossy whitish-ochreous; cilia whitish-ochreous. Hindwings light ochreous-grey; cilia whitish-ochreous.

Duaringa, Queensland, in April (G. Barnard); one specimen.

Nearest to *E. pantelella*, but easily known by the contrasted dark thorax.

Eulechria nicæa, n. sp.

Female, 26 mm. Head and thorax pale ochreous, slightly brown-sprinkled. Palpi ochreous-whitish, second joint dark fuscous except towards base and apex, terminal joint suffused with dark fuscous except towards base. Antennæ pale ochreous, ringed with dark fuscous. (Abdomen broken.)

Legs dark fuscous, ringed with whitish-ochreous (posterior pair broken). Forewings elongate, moderate, costa moderately arched, apex obtuse, termen rounded, rather oblique; ochreous-fuscous, obscurely irrorated with pale and dark; a small sharp triangular whitish-ochreous basal spot on dorsum, limited above by a small dark fuscous costal spot, and followed by darker suffusion; stigmata cloudy, dark fuscous, plical directly beneath first discal; a series of indistinct dark fuscous dots from three-fourths of costa to a prætornal spot, extremely close to costa and termen throughout; cilia light fuscous, dakermixed, apical half fuscous-whitish. Hindwings whitish-fuscous; cilia fuscous-whitish, base mixed with fuscous.

Tasmania, probably, but locality not recorded (A. Simson); one specimen.

Allied to *E. ophthalmias*, but without the pale discal spots and dark head, and specially characterised by the large size.

Eulechria meselectra, n. sp.

Male and female, 15-16 mm. Head and thorax pale ochreous, tinged with brown-reddish. Palpi whitish-ochreous, slightly reddish-tinged. Antennæ ochreous, base in male suffused with dark fuscous. Abdomen orange-ochreous, segmental margins pale brownish-ochreous. Legs rather dark fuscous, pale-ringed, posterior pair whitish-ochreous. Forewings elongate, costa moderately arched, apex obtuse, termen very obliquely rounded; brownish-ochreous, suffused with light purplish-fuscous, more strongly towards base; extreme base sharply whitish-ochreous, edged posteriorly with darker fuscous suffusion; second discal stigma obscurely darker; cilia brownish-ochreous, base mixed with fuscous, tips paler. Hindwings light grey or whitish-grey; cilia ochreous-grey-whitish.

Duaringa and Brisbane, Queensland, in September and October (G. Barnard, A. J. Turner); three specimens.

Similar in general appearance to the preceding species, but much smaller, and probably not really closely allied, as it differs much in palpi, form of wing, and other details.

Eulechria piodes, n. sp.

Male and female, 13-17 mm. Head whitish-ochreous. Palpi rather stout, whitish-ochreous, second joint externally dark fuscous except at apex. Antennæ in male rather stout, ciliations ($1\frac{1}{2}$). Thorax whitish-ochreous, collar and shoulders coppery-fuscous. Abdomen golden-ochreous, segmental margins whitish-ochreous. Legs dark fuscous, ringed with whitish-ochreous, hairs of posterior tibiæ whitish-ochreous. Forewings elongate, moderate, costa gently arched, apex ob-

tuse, termen obliquely rounded; pale ochreous-yellowish, more or less tinged or partially suffused with brown; basal area wholly suffused with brown except a pale ochreous-yellowish spot along basal one-fourth of dorsum, followed by a dark fuscous dorsal suffusion; stigmata moderate, dark fuscous, plical directly beneath first discal; a triangular dark fuscous spot on middle of costa; an indistinct fuscous subterminal line starting from a darker costal spot at four-fifths, bent in middle, lower portion close to termen; cilia pale ochreous-yellowish, base more or less brownish. Hindwings whitish-ochreous, wholly suffused with light coppery-fuscous; cilia whitish-ochreous, tinged with fuscous.

Duaringa, Queensland, in November, February, April, and May (G. Barnard); seven specimens.

A peculiar species, not very near any other, characterised by the conspicuous dark costal spots.

Eulechria zemiodes, n. sp.

Female, 14 mm. Head, palpi, and thorax dark bronzy-fuscous, pale-sprinkled. Antennæ, abdomen, and legs rather dark fuscous, legs whitish-ringed. Forewings elongate, costa moderately arched, apex round-pointed, termen very obliquely rounded; rather dark bronzy-fuscous, mixed with lighter and darker; stigmata large, blackish-brown, plical directly beneath and suffusedly confluent with first discal; some pale scales in middle of disc, and a pale suffusion beyond second discal; posterior half of costa broadly suffused with blackish-brown, except on a whitish-ochreous costal spot at two-thirds; some pale scales towards apex; cilia bronzy-fuscous, somewhat mixed with paler and darker. Hindwings and cilia rather dark fuscous.

Bendigo, Victoria, in November (G. Lyell); one specimen.

Not close to any other; perhaps most allied to the New Zealand *E. zophoessa*.

Eulechria hymenæa, n. sp.

Male, 15-16 mm. Head yellow. Palpi pale yellow, lower half of second joint dark fuscous. Thorax dark fuscous. Abdomen grey. Forewings elongate, moderate, costa moderately arched, apex obtuse, termen obliquely rounded; yellow; base narrowly dark fuscous; a moderate inwards-curved dark fuscous fascia from three-fourths of costa to tornus; cilia pale yellowish, posteriorly brownish-tinged, on extremities of fascia suffused with dark fuscous. Hindwings and cilia grey.

Duaringa and Warwick, Queensland, in September (G. Barnard, A. J. Turner); two specimens.

Belongs to the group of *E. malacoptera*; it cannot be confused with any species of the genus, but is extremely similar to some species of *Cœsyra*.

EULECHRIA ISCHNODES, n. sp.

Male, 26 mm. Head grey-whitish, crown with a fuscous spot. Palpi whitish, second joint dark grey except apex. Antennæ grey, ciliations ($1\frac{1}{2}$). Thorax whitish, mixed with fuscous. Abdomen light greyish-ochreous. Legs grey, posterior pair white. Forewings elongate, costa moderately arched, apex round-pointed, termen very obliquely rounded; fuscous, irrorated with whitish, in disc and posteriorly largely suffused with white, which forms a sub-costal streak well defined on costal side from near base to three-fourths; stigmata small, dark fuscous, plical somewhat obliquely beyond first discal, a similar dot between and rather above first and second discal, and another beneath and rather obliquely before second discal; an interrupted curved subterminal line of ground color from four-fifths of costa to before tornus, sharply indented and darkened beneath costa, its indentation connected with lower extremity by a transverse undefined suffusion of ground color, a terminal series of indistinct darker fuscous dots; cilia whitish, with two indistinct pale fuscous shades. Hindwings pale fuscous; cilia ochreous-whitish, with two faint pale fuscous shades.

Kewell, Victoria (J. A. Kershaw); one specimen.

Belongs to the *adoxella* group, in which it is readily recognised by its considerable size, relatively narrow wings, and general white suffusion, with distinct subcostal streak.

EULECHRIA PHORYNTIS, n. sp.

Female, 21 mm. Head and thorax grey, whitish-mixed. Palpi dark grey, apex of second joint white. Antennæ grey, pale-ringed. Abdomen grey, ovipositor long. Legs dark grey, whitish-ringed, hairs of posterior tibiæ whitish. Forewings elongate, moderate, costa rather strongly arched on anterior half, gently posteriorly, apex round-pointed, termen very obliquely rounded; grey, irregularly irrorated with whitish and dark fuscous; veins partially obscurely streaked with darker; an oblique irregular cloudy dark subbasal fascia indistinctly indicated, stigmata dark fuscous, ill-defined, plical obliquely beyond first discal; a sharply angulated series of suffused dark fuscous dots from three-fourths of costa to tornus, upper section sinuate inwards; cilia pale fuscous, somewhat mixed with whitish and dark fuscous. Hindwings grey, paler anteriorly; cilia pale whitish-fuscous, with traces of two cloudy darker shades.

Gisborne, Victoria, in April (G. Lyell); one specimen.

An obscure insect, apparently nearest to *E. cerodes*, but distinguishable by the somewhat different form of wing, subbasal fascia, and the absence of the characteristic fine ochreous-white costal edge.

Eulechria scotiodes, n. sp.

Male, 16-17 mm. Head and thorax dark fuscous mixed with whitish-ochreous. Palpi dark fuscous, second joint with whitish apical and subapical rings. Antennæ fuscous, ciliations (1). Abdomen fuscous, segmental margins ochreous-whitish. Legs dark fuscous ringed with ochreous-whitish, hairs of posterior tibiæ ochreous-whitish. Forewings elongate, rather narrow, costa moderately arched, apex round-pointed, termen very obliquely rounded; dark fuscous, irregularly mottled with ochreous-whitish; stigmata rather large, darker fuscous, ill-defined, plical obliquely before first discal, an additional spot beyond first discal, and one on costa above second discal; cilia whitish-fuscous, partially mixed with dark fuscous. Hindwings grey-whitish; cilia whitish ochreous, round apex fuscous-tinged.

Adelaide, South Australia, in September (O. Lower); three specimens.

This species is easily recognised by the peculiar ochreous-whitish mottling of the narrow forewings, and the grey-whitish hindwings; perhaps most allied to *E. adelphodes*, Low.

Eulechria optalea, n. sp.

Female, 14 mm. Head, palpi, and thorax pale yellow-ochreous, sprinkled with brown or dark fuscous. Antennæ whitish-ochreous, annulated with dark fuscous. Abdomen whitish-ochreous, ovipositor very long. Legs dark fuscous, ringed with whitish-ochreous, hairs of posterior tibiæ whitish-ochreous. Forewings elongate, narrow, costa gently arched, apex round-pointed, termen extremely obliquely rounded; light yellow-ochreous, sprinkled with dark fuscous; dark fuscous dots on base of costa and dorsum; stigmata moderate, dark fuscous, plical directly beneath first discal; a very strongly curved series of undefined dark fuscous dots from three-fifths of costa to tornus, running very close to costa and termen; cilia pale yellow-ochreous, sprinkled with dark fuscous, tips ochreous-whitish. Hindwings tolerably pointed, grey, becoming whitish-grey anteriorly; cilia ochreous-whitish.

Gisborne, Victoria, in January (G. Lyell); one specimen.

By the narrow wings allied to *E. charierga* and *stenota*, but easily known by yellow-ochreous ground color and absence of black median costal spot.

ŒNOCHROA, Meyr.

Œnochroa homora, n. sp.

Female, 16 mm. Head, palpi, and thorax dark bronzy-fuscous, finely sprinkled with white. Antennæ dark fuscous. Abdomen dark grey, apex ochreous-yellow beneath. Legs dark fuscous, posterior tarsi ringed with whitish, hairs of posterior tibiæ whitish. Forewings elongate, narrow, costa moderately arched, apex round-pointed, termen extremely obliquely rounded; dark fuscous, slightly bronzy-tinged, irrorated with grey whitish-edged scales; the pale irroration forms an undefined longitudinal streak in disc from one-fourth to three-fourths, edged above and below with darker streaks from absence of irroration; cilia fuscous, somewhat whitish-sprinkled. Hindwings fuscous, darker posteriorly; cilia fuscous.

Hobart, Tasmania, in December; one specimen. Also found at Brisbane, Queensland, by Dr. A. J. Turner, who has bred the species from *Acacia*.

Distinguished from the rest of the genus by the combination of small size and dark hindwings.

LINOSTICHA, Meyr.

Linosticha autographa, n. sp.

Male, 19 mm. Head whitish, crown fuscous except on sides. Palpi fuscous, apex of second joint whitish, terminal joint whitish, basal half suffused with dark fuscous above. Thorax rather dark fuscous. Abdomen pale grey. Forewings elongate, costa gently arched, apex obtuse, termen very obliquely rounded; fuscous, somewhat mixed with dark fuscous, between veins marked with cloudy dark fuscous lines; costal edge white; veins partially streaked with white, especially margins of cell, towards base of upper margin stronger and more sharply marked; stigmata obscured, dark fuscous, plical beneath first discal; cilia pale grey, base mixed with fuscous. Hindwings and cilia pale grey.

Sydney, New South Wales, in April; one specimen.

Not near any other; perhaps most related to *L. dichroa*, Low.

Linosticha themerodes, n. sp.

Male, 20 mm. Head whitish-ochreous, sprinkled with dark fuscous. Palpi ochreous-whitish, irrorated with dark fuscous.

Antennæ dark grey. Thorax whitish-ochreous, irrorated with dark fuscous. Abdomen pale ochreous, segmental margins ochreous-grey-whitish. Legs dark fuscous ringed with ochreous-whitish, posterior pair whitish-ochreous. Forewings elongate, moderate, costa gently arched, apex rounded, termen very obliquely rounded; pale whitish-ochreous, bronzy-shining, irregularly irrorated with bronzy-fuscous; base narrowly suffused with dark bronzy-fuscous; stigmata rather large, cloudy, dark fuscous, discal approximated, plical obliquely before first discal, a similar additional dot directly above plical; a curved series of cloudy dark fuscous dots from four-fifths of costa to a cloudy praetornal spot, upper half confluent with a cloudy transverse costal blotch; cilia pale whitish-ochreous, basal half mixed with fuscous. Hindwings pale fuscous; cilia fuscous-whitish.

Gisborne, Victoria, in October (G. Lyell); one specimen.

Apparently most allied to *L. nomistis*, but very distinct.

TRACHYNTIS, Meyr.

Trachyntis thrypticopa, n. sp.

Male, 13 mm. Head white. Palpi white, lower three-fifths of second joint and subbasal and apical rings of terminal joint blackish. Antennæ blackish. Thorax white, partially ochreous-tinged. Abdomen grey. Legs dark fuscous, whitish-ringed, hairs of posterior tibiæ fuscous-whitish. Forewings elongate, narrow, costa moderately arched, apex round-pointed, termen extremely obliquely rounded; pale yellow-ochreous, with a few scattered blackish scales; basal area white, except a subcostal spot of groundcolor, and black spots at base of costa and dorsum; a white costal streak, interrupted at one-fourth and one-half by bronzy-fuscous patches irrorated with black, terminated posteriorly by apical patch; stigmata dark fuscous, first discal moderate, plical forming an oval spot obliquely before first discal, second discal large, connected with an irregular spot beneath and obliquely before it, and followed by a white suffusion; a large apical bronzy-fuscous patch irrorated with blackish, narrowly extended along termen to tornus, containing some whitish scales near apex; cilia light bronzy-fuscous, base sprinkled with blackish. Hindwings grey; cilia light grey.

Gisborne, Victoria, in November (G. Lyell); one specimen.

Extremely distinct; may be placed next *T. xenopis*.

TRACHYNTIS EPIPONA, n. sp.

Male, 13 mm. Head grey-whitish. Palpi whitish, lower half of second joint dark fuscous. Antennæ grey. Thorax grey-whitish, mixed anteriorly with fuscous. Abdomen grey. Legs dark fuscous, ringed with whitish, hairs of posterior tibiæ whitish. Forewings elongate, rather narrow, costa gently arched, apex rounded, termen very obliquely rounded; grey-whitish, irregularly sprinkled with fuscous and a few black scales; four direct irregular dark brown fasciæ, first subbasal, second before middle, including cloudy blackish plical and first discal stigmata, third at two-thirds, including cloudy black second discal stigma, fourth subapical, suffusedly confluent with third in middle; cilia whitish, mixed with fuscous and dark fuscous. Hindwings grey, darker terminally; cilia light grey.

Sydney, New South Wales, in April; one specimen. Allied to *T. delophanes*, but narrower-winged, without the white discal streak, and otherwise quite distinct.

PHLŒOPOLA, Meyr.

PHLŒOPOLA EPETHISTIS, n. sp.

Male and female, 20-24 mm. Head ochreous-whitish, mixed with fuscous. Palpi ochreous-whitish, basal half and a subapical ring of second joint, and a broad band above base of terminal joint dark fuscous. Antennæ pale ochreous, obscurely spotted with dark fuscous. Thorax rather dark fuscous, sprinkled or mixed with ochreous-whitish. Abdomen brownish-ochreous, segmental margins ochreous-whitish. Legs dark fuscous, ringed with ochreous-whitish, hairs of posterior tibiæ ochreous-whitish. Forewings elongate, moderate, costa moderately arched, apex obtuse, termen little rounded, oblique; pale whitish-ochreous, confusedly mixed and irrorated with brownish-ochreous and dark fuscous; a bronzy-brown basal patch mixed with dark fuscous; a very undefined bronzy-brown fascia from one-fourth of costa to middle of dorsum, and another from middle of costa to tornus, sharply angulated below middle; stigmata cloudy, dark fuscous, plical more or less elongate, obliquely before first discal; a curved subterminal series of coudy dark fuscous dots, starting from an inwardly oblique dark fuscous spot on costa towards apex; cilia pale whitish-ochreous mixed with fuscous and dark fuscous. Hindwings ochreous-grey-whitish, somewhat fuscous-sprinkled; cilia fuscous-whitish mixed with fuscous.

Deloraine, Tasmania, in December; three specimens.

A confusedly-marked species, belonging to the *turbatella* group, but distinguished from all near allies by the pale hindwings.

SPHYRELATA, Meyr.

Sphyrelata melanoleuca, Meyr.

Gelechia microspiloplaca, Low., Trans. Roy. Soc., S. Austr., 1894, 106, is a synonym of this.

ACOLASTA, n. g.

Head smooth-scaled; tongue developed. Antennæ three-fourths, in male serrulate, shortly ciliated ($\frac{1}{2}$), basal joint moderate, with slight pecten. Labial palpi very long, recurved, second joint thickened with appressed scales, terminal joint as long as or shorter than second, slender, acute. Posterior tibiæ clothed with long fine hairs above. Forewings: 2 from very near angle, 7 and 8 stalked, 7 to apex, 11 from middle of cell. Hindwings (1), elongate-ovate, cilia two-thirds, 3 and 4 connate.

This and the six following genera form an associated group (to which also the large European genus *Depressaria* and its allies belong), which may be regarded as a development of the *Borkhausenia* group. The antennæ are simple or very shortly ciliated in the male, and vein 7 of the forewings terminates in the costa or apex.

Type *A. scolia*.

Acolasta pachnias, n. sp.

Female, 18 mm. Head and thorax white, finely irrorated with dark fuscous. Palpi white, second joint dark fuscous on basal half and a subapical ring. Abdomen grey. Forewings elongate, rather narrow; costa moderately arched, apex round-pointed, termen very obliquely rounded; white, finely irrorated with fuscous and dark fuscous, with fine blackish streaks between veins; stigmata small, blackish, plical rather beyond first discal; cilia whitish, sprinkled and barred with dark fuscous. Hindwings rather dark grey, lighter towards base; cilia grey-whitish, suffused with fuscous towards base.

Duaringa, Queensland, in October (G. Barnard); one specimen. Characterised by the distinct black stigmata, and darker hindwings.

Acolasta scolia, n. sp.

Male and female, 18-20 mm. Head whitish, crown dark fuscous except on sides. Palpi white, second joint dark fuscous above. Thorax white, with blackish dorsal and præ-

lateral stripes. Abdomen pale ochreous-grey. Forewings elongate, rather narrow, costa moderately arched, apex round-pointed, termen very obliquely rounded; whitish, irregularly streaked with dark fuscous between veins; a thicker subcostal streak from base of costa to beneath middle of costa, an irregular-edged median longitudinal streak from base to apex, and a broader dorsal streak from near base to tornus; cilia fuscous, mixed with dark fuscous, base mixed with white. Hindwings and cilia light ochreous-grey.

Sydney, New South Wales, in November and December; three specimens.

The strong dorsal streak distinguishes it equally from the preceding insect, and from the very similar species of the following genus. All these frequent the trunks of stringy-barked *Eucalypti*, and are colored for concealment in that situation.

LEPTOSACES, Meyr.

Head smooth-scaled; tongue developed. Antennæ three-fourths, serrulate, in male simple, basal joint moderate, without pecten. Labial palpi very long, recurved, second joint thickened with scales, more or less rough towards apex above and beneath, terminal joint shorter than second, slender, acute. Posterior tibiæ clothed with long fine hairs above. Forewings: 7 and 8 stalked, 7 to costa, 11 from midde of cell. Hindwings (1), elongate-ovate, cilia two-thirds; 3 and 4 connate.

Based on a New Zealand species, from which the Australian forms only appear to differ in the more roughly scaled palpi, and as even in them the rough scaling seems to be sometimes naturally appressed, there is no sufficient cause for discrimination.

Leptosaces schistopa, n. sp.

Male and female, 13-18 mm. Head fuscous-whitish mixed with fuscous, crown darker centrally. Palpi fuscous-whitish mixed with dark fuscous. Thorax light fuscous, whitish-sprinkled, with blackish dorsal and lateral stripes. Abdomen light fuscous. Forewings elongate, rather narrow, costa moderately arched, apex obtuse, termen very obliquely rounded; whitish, somewhat mixed with fuscous, coarsely and irregularly streaked with blackish-fuscous between veins; a blackish-fuscous median longitudinal streak from base to termen, finely attenuated basally; a stronger blackish-fuscous subdorsal streak from base to tornus; cilia dark fuscous,

sprinkled with whitish. Hindwings fuscous, lighter anteriorly; cilia pale fuscous.

Brisbane, Queensland; Glen Innes (3,500 ft.), New South Wales; Gisborne, Victoria; from October to December, six specimens.

Very similar to the following, but smaller and easily distinguished by the dark hindwings.

LEPTOSACES PYTINÆA, n. sp.

Female, 18-19 mm. Head whitish, crown suffused with dark fuscous except on sides. Palpi whitish, second joint dark fuscous on basal two-thirds and a subapical ring, terminal joint mixed with dark fuscous Thorax whitish, with blackish dorsal and lateral stripes. Abdomen ochreous-grey-whitish. Forewings elongate, rather narrow, costa moderately arched, apex obtuse, termen very fuscous between veins; a thicker subcostal streak from base to beneath middle of costa, and one in disc from one-fifth to two-thirds; a stronger blackish-fuscous subdorsal streak from base to tornus; cilia whitish, sprinkled with dark fuscous. Hindwings and cilia ochreous-grey-whitish.

Sydney, New South Wales, in October; four specimens.

Characterised by the whitish hindwings.

PHÆOSACES, Meyr.

This genus would be inserted here; it contains several New Zealand species, and I have also described one from Ceylon; it is, therefore, probable that the genus will be found to occur in Queensland, but at present I have seen no Australian species referable to it.

PEDOIS, Turn.

Hairs of crown forming a strong projecting tuft between antennæ; tongue developed. Antennæ three-fourths, in male serrulate, very shortly ciliated ($\frac{1}{2}$), second joint thickened with appressed scales and with rough projecting scales above towards apex, terminal joint shorter, slender, acute. Posterior tibiæ clothed above with long hairs. Forewings: 2 from near angle of cell, 7 and 8 stalked, 7 to costa, 11 from middle of cell. Hindwings (1), elongate-ovate, cilia one-third, 3 and 4 connate or short-stalked.

I now restrict this genus (originally communicated by me to Dr. Turner in a wider sense, and so described by him) to the following single species only; he has specified no type, and his

description clearly includes this and the following genus. The curious frontal tuft (caused by the side tufts being prolonged forwards) and the projecting scales of the palpi are sufficient distinction.

PEDOIS NEUROSTICHA, Low.

(*Pedois neurosticha*, Low., Trans. Roy. Soc., S. Austr., 1894, 112.)

Male and female, 21-24 mm. Head and thorax whitish, irrorated with grey. Palpi whitish, second joint grey in front, and with grey subapical and sometimes supramedian rings, terminal joint dark grey in front. Abdomen pale greyish-ochreous. Forewings moderate, suboblong, costa anteriorly strongly arched, apex rounded, termen rather obliquely rounded; white, irrorated with grey; numerous short irregular undefined dark grey longitudinal streaks, roughly arranged in three angulated series parallel to costa and termen, and a similar series along posterior half of costa and termen; stigmata blackish, rather undefined, plical slightly beyond first discal; cilia whitish. Hindwings light grey; cilia whitish-grey, tips whitish.

Blackheath (3,500 ft.), Glen Innes (3,500 ft.), and Cooma (3,000 ft.), New South Wales; Gisborne, Victoria; Mount Lofty, South Australia; ten specimens.

Frequents the trunks of *Eucalyptus*.

DOLEROMIMA, n. g.

Head with appressed scales; tongue developed. Antennæ three-fourths, in male serrulate, very shortly ciliated (½), basal joint moderate, without pecten. Labial palpi long, recurved, second joint thickened with appressed scales, terminal joint shorter, slender, acute. Posterior tibiæ clothed above with long hairs. Forewings: 2 from near angle, 7 and 8 stalked, 7 to costa, 11 from middle of cell. Hindwings (1), elongate-ovate, cilia one-third; 3 and 4 connate or short-stalked.

Allied to *Phœosaces*, from which it differs by the costal termination of vein 7 of forewings, and shortly ciliated antennæ of male.

Type *D. eumorpha*. To this genus belongs also probably *D. rhodomita*, Turn., which I do not possess.

DOLEROMIMA HUMERANA, Walk.

(*Conchylis humerana*, Walk., Cat. Tort., 366.)

Male and female, 17-21 mm. Head orange. Palpi whitish-ochreous, second joint blackish except towards base and apex,

terminal joint blackish anteriorly. Thorax orange, on sides and posteriorly blackish. Abdomen ochreous-yellowish. Forewings moderately broad, suboblong, costa anteriorly strongly arched, apex rounded, termen rather obliquely rounded; ochreous-orange; a blackish streak along basal third of costa, sometimes suffused posteriorly; an irregular straight slightly oblique blackish streak from costa beyond middle, not reaching dorsum; cilia pale orange. Hindwings rather dark grey, dorsally tinged with ochreous-whitish; cilia ochreous-whitish.

Armidale (3,500 ft.), Tenterfield (3,000 ft.), and Blackheath (3,500 ft.), New South Wales; Melbourne, Victoria; Launceston, Tasmania; from December to February, six specimens.

Larva probably feeds on *Eucalyptus*. Pupa stout, head and shoulders angulated, emitting short blunt processes; fuscous-grey, marbled with whitish, with a pale lateral stripe; naked and exposed, sitting erect on the truncate anal segment. I once found a larva, which changed immediately to the extremely singular pupa described above, and bred the imago from it. The species is conspicuously distinct.

Doleromima eumorpha, n. sp.

Male and female, 18-22 mm. Head and thorax reddish-fuscous. Palpi whitish, second joint with three irregular black bands, terminal joint black anteriorly. Abdomen dark fuscous. Forewings moderate, suboblong, costa anteriorly strongly arched, apex very obtuse, termen rather obliquely rounded; reddish-fuscous; costal edge yellowish-white; stigmata black, plical beneath first discal, second discal somewhat larger, followed by a patch of rather paler suffusion in disc; a very indistinct somewhat darker angulated subterminal fascia; cilia light reddish-fuscous, basal half barred with darker. Hindwings deep ochreous-yellow; a patch along dorsum, small apical patch, and terminal line dark fuscous; cilia dark fuscous.

Armidale (3,500 ft.) and Bathurst (2,500 ft.), New South Wales; Melbourne, Victoria; in October and November, ten specimens.

Very distinct by the yellow hindwings.

Doleromima tripunctella, Walk.

(*Cryptolechia tripunctella*, Walk. Cat. Tin., 757; *Pedois cosmopoda*, Turn., Trans. Roy. Soc., S. Aust., 1900, 12.)

Male and female, 16-19 mm. Head and thorax reddish-brown mixed with grey-whitish. Palpi whitish, second joint

with three dark fuscous bands, terminal joint dark fuscous anteriorly. Abdomen pale whitish-ochreous. Forewings moderate, suboblong, costa anteriorly strongly arched, apex obtuse, termen obliquely rounded; light fuscous, mixed with reddish, marked with irregular suffused dark fuscous streaks on veins, anterior half irregularly suffused with grey-whitish; extreme costal edge rosy-white; stigmata dark fuscous, sometimes ill-defined, plical beneath first discal, sometimes extended anteriorly to form a short dash, second discal somewhat larger; a thick cloudy dentate angulated grey-whitish line, near and parallel to posterior half of costa and termen; cilia rosy-whitish, basal half barred with fuscous. Hindwings light grey, ochreous-tinged, paler towards base; cilia grey-whitish or light grey.

Brisbane, Queensland; Sydney, New South Wales; from August to October, ten specimens.

I am unable to regard *cosmopoda*, Turn. (of which I have an example received from Dr. Turner) as anything but a variety; the species varies a good deal in development of color and distinctness of marking.

Doleromima ceramora, n. sp.

Male, 18-23 mm. Head and thorax fuscous, somewhat mixed with grey-whitish. Palpi whitish, second joint with three blackish bands, terminal joint blackish anteriorly. Antennæ fuscous. Abdomen pale greyish-ochreous. Legs ochreous-whitish, anterior and middle pair banded with dark fuscous. Forewings elongate, moderate, costa anteriorly moderately, posteriorly gently arched, apex obtuse, termen little rounded, rather strongly oblique; fuscous, sometimes reddish-tinged, sprinkled with dark fuscous; anterior half more or less mixed with ochreous-whitish; stigmata indistinct, dark fuscous, plical beneath first discal; a thick cloudy dentate angulated ochreous-whitish subterminal line, near and parallel to posterior half of costa and termen; a terminal series of dark spots; cilia pinkish-whitish, with interrupted fuscous median bar. Hindwings light grey, paler towards base; cilia pale grey.

Gisborne, Victoria, in September (G. Lyell); two specimens.

Nearly allied to the preceding, but certainly distinct by the different form of the forewings, which are more elongate, distinctly narrowed anteriorly, with the costa less arched and termen more oblique; it is also a larger insect, without any defined dark streaks on veins.

OCTASPHALES, Meyr.

Head with appressed hairs; tongue developed. Antennæ 1 or over 1, in male simple, basal joint moderate, without pecten. Labial palpi very long, recurved, smooth-scaled, terminal joint as long as or shorter than second, acute. Posterior tibiæ clothed with long hairs above. Forewings: 2 from near angle, sometimes stalked with 3, 7 to apex, 8 absent (coincident with 7), 11 from middle of cell. Hindwings 1, oblong-ovate, cilia one-third; 3 and 4 connate, 7 curved downwards in middle.

Founded on a New Guinea species, *O. charitopa*, with which the following is congeneric. Immediately distinguished from all near allies by the coincidence of veins 7 and 8 of the forewings; in all other respects, however, it is cosely related to *Peritorneuta*, and if any species should prove to be variable in this particular the two genera would have to be united, in which case *Octasphales* has priority.

Octasphales chorderes, n. sp.

Male and female, 15-16 mm. Head, palpi, and thorax brown. Abdomen light ochreous-yellow. Forewings moderately broad, oblong, costa rather strongly arched, apex rounded, termen hardly oblique, rounded; light brown, sometimes rosy-tinged, sometimes mixed with pale ashy-grey in disc; costal edge pale yellow-ochreous, sometimes rosy-suffused; numerous indistinct scattered dark brown dots; a straight transverse ill-defined dark brown streak from middle of costa to four-fifths of dorsum; cilia ochreous-grey-whitish, with an indistinct fuscous line, base slightly rosy-tinged. Hindwings rather dark grey; costal edge and a suffusion along dorsum pale yellowish; cilia ochreous-whitish, with a faint grey line.

Rosewood, Queensland, in September; two specimens.

PERITORNEUTA, Turn.

Head with appressed hairs; tongue developed. Antennæ 1 or over 1, in male simple, basal joint moderate, without pecten. Labial palpi very long, recurved, smooth-scaled, terminal joint shorter than second, acute. Posterior tibiæ clothed with long hairs above. Forewings: 2 from near angle, 7 and 8 stalked, 7 to apex, 11 from middle of cell. Hindwings 1, oblong-ovate, cilia one-third; 3 and 4 connate, 7 curved downwards in middle.

Dr. Turner adopted this genus from me, but has given the

characters incorrectly, 6 and 7 of forewings being stated as stalked, instead of 7 and 8. He has not specified a type; I make *P. circulatella* the type. The length of the antennæ distinguishes it from all its near allies in Australia except the preceding and *Cerycostola;* the peculiar rounded appearance of the wings is also characteristic. *P. stigmatias*, Turn., is unknown to me, but is doubtless correctly referable to the genus.

PERITORNEUTA CIRCULATELLA, Walk.

(*Cryptolechia circulatella*, Walk. Cat. Tin., 767.)

Male and female, 19-21 mm. Head and thorax whitish-rosy-grey. Palpi rosy-grey, more whitish basally, terminal joint with two dark bands. Abdomen light ochreous-yellowish. Forewings moderately broad, costa strongly rounded, apex rounded, termen vertical, rounded beneath; light reddish-ochreous, sometimes rosy-tinged, with numerous transverse dark ferruginous-brown strigæ more or less broken up into series of dots; costal edge pale rosy; a broad streak of grey-whitish suffusion along anterior half of costa, posteriorly irregularly extended into disc; an indistinct grey-whitish suffusion on costa beyond middle; a narrow grey-whitish terminal streak; cilia grey-whitish, rosy-tinged. Hindwings ochreous-yellow, towards apex darker and sometimes rosy-tinged; cilia light ochreous-yellowish, base sometimes fuscous-tinged.

Maryborough and Brisbane, Queensland, in October; three specimens.

Differs from all the rest by the pale costal patch and clear yellow hindwings.

PERITORNEUTA THYELLIA, n. sp.

Male and female, 16-18 mm. Head, palpi, and thorax pale flesh-color. Abdomen ochreous-grey-whitish. Forewings moderate, costa rather strongly arched, apex rounded, termen hardly oblique, rounded beneath, pale flesh-color; numerous more or less distinct dark fuscous dots, arranged in irregular transverse series; an indistinct prætornal spot of grey suffusion; cilia ochreous-whitish, pinkish-tinged. Hindwings whitish-ochreous or pale yellowish, generally more or less fuscous-tinged; cilia ochreous-whitish.

Duaringa, Rockhampton, Rosewood, and Brisbane, Queensland; Newcastle, New South Wales; in September, eight specimens.

PERITORNEUTA RHODOPHANES, n. sp.

Male and female, 16-18 mm. Head, palpi, and thorax pale grey, sometimes rosy-tinged. Abdomen grey-whitish. Fore-

wings moderate, costa rather strongly arched, apex rounded, termen hardly oblique, rounded beneath; pale grey, sometimes suffused with pale pinkish; costal edge light rosy; numerous dark grey dots, sometimes mostly obsolete, arranged in irregular transverse series; a larger transverse dark fuscous dot in disc beyond middle; cilia grey-whitish, more or less pinkish-tinged. Hindwings light grey or whitish-grey; cilia grey-whitish.

Geraldton, York, and Perth, West Australa, in November; eleven specimens.

Allied to the preceding, but distinguished by the hindwings not being yellowish, and the absence of the darker prætornal cloud.

CERYCOSTOLA, n. g.

Head with loosely appressed scales; tongue developed. Antennæ (1), basal joint moderate, without pecten. Labial palpi very long, recurved, second joint with appressed scales, much exceeding base of antennæ, terminal joint considerably shorter than second, acute, rather thickened with scales, with a median tooth of projecting scales posteriorly. Posterior tibiæ loosely haired. Forewings: 2 from near angle, 7 and 8 stalked, 7 to apex, 11 from before middle of cell. Hindwings (1), ovate, cilia one-sixth; 3 and 4 connate, 7 bent downwards in middle.

I am now of opinion that my reference of the following species to *Gonionota*, Zell., was not justified; Zeller's definition of his genus is extremely imperfect (the neuration not being described at all); the only tangible distinctive character given, the median posterior scale-tuft on terminal joint of labial palpi, since it occurs also in the allied *Binsitta* and *Semiocosma*, may belong to more than one other genus. Hence I give it a new generic name; the structural characters as above were not published with the species, but I described them at the time from the original types.

The genus is clearly allied to *Peritorneuta*.

Cerycostola pyrobola, Meyr.

(*Gonionota pyrobola*, Meyr., Proc. Linn. Soc., New South Wales, 1886, 1041.)

I have seen no specimens except the original types.

BINSITTA, Walk.

Head with appressed hairs; tongue short. Antennæ ($\frac{1}{2}$), in male simple, basal joint elongate, without pecten. Labial palpi very long, recurved, second joint much thickened beneath

with dense brush of rough projecting scales, terminal joint as long as second, slender, acute, towards middle thickened in front and behind with projections of rough scales. Thorax with erect crest of scales. Posterior tibiæ with dense long hairs above, all tarsi short and stout. Forewings with tufts of raised scales, middle third of costa excavated; 2 from rather near angle, 4 and 5 connate, 7 and 8 stalked, 11 from middle of cell. Hindwings (1), trapezoidal, cilia one-third; 3 and 4 short-stalked.

A small Indo-Malayan genus of peculiar facies, belonging to the *Depressaria* group.

BINSITTA EFFRACTELLA, Snell.

(*Cryptolechia effractella*, Snell, Tijd., v., Ent., xxii., ii., pl. vii., 17-25; *Teratomorpha cœliota*, Turn., Trans. Roy. Soc., S. Austr., 1896, 20.)

Male, 28 mm. Head pale whitish-ochreous. Palpi whitish, terminal joint with two blackish rings. Forewings oblong, costa roughened with scale-tufts at one-third and two-thirds, termen little oblique, hardly sinuate; pale whitish-ochreous; a trapezoidal dark fuscous blotch, with leaden-metallic reflections, on costa at one-fifth; two large discal tufts below this, and two others transversely placed before middle, partially brownish-tinged, separated by some dark fuscous scales; some raised spots with silvery-whitish reflection beyond this; some brown and black scales towards costa beyond middle; two posterior angulated series of raised spots with silvery-whitish reflections, accompanied by a few black scales, last almost terminal and transversing a triangular brown apical blotch mixed with black; cilia brownish, with leaden-metallic reflections. Hindwings pale ochreous-yellow; a blackish apical dot; cilia whitish-yellowish, at apex wih two blackish lines.

Bowen, Queensland; one specimen received from A. Simson, and others in the Brisbane Museum.

CERATOPHYSETIS, Meyr.

A development of *Psecadia*, characterised by the peculiar antennæ. Dr. Turner mentions that in a better-preserved example the anterior edge of the antennæ is furnished with a brush of long whitish hairs.

CERATOPHYSETIS SPHÆROSTICHA, Meyr.

(*Ceratophysetis sphærosticha*, Meyr., Proc. Linn. Soc., New South Wales, 1886, 1045.)

I possess a female from Queensland; in this sex the antennæ are normal, but otherwise there is no particular difference.

PSECADIA, Hb.

Head with appressed scales; tongue developed. Antennæ three-fourths, in male shortly ciliated, basal joint without pecten. Labial palpi moderate or long, recurved, second joint with appressed scales, terminal joint shorter, acute. Posterior tibiæ clothed with hairs. Forewings: 2 from near angle, 7 and 8 stalked, 7 to costa or apex. Hindwings (1), elongate-ovate, cilia one-third; 3 and 4 connate.

A small genus of very wide distribution. The species are usually retired in habit, and not to be taken freely in the perfect state.

Psecadia postica, Zell.

(*Psecadia postica*, Zell., Hor. Ross, 1877, 236, pl. iii. 72.)

Female, 21-22 mm. Head white. Palpi white, lower half of second joint and base of terminal joint blackish. Antennæ black. Thorax white, base of patagia, a central blotch, and posterior spot blackish. Abdomen dark fuscous, segmental margins white, anal tuft black. Legs dark fuscous, banded with white. Forewings elongate, moderate, costa moderately arched, apex obtuse, termen nearly straight, rather oblique; white, with blackish-fuscous markings; costal edge blackish, interrupted about one-fourth and near apex; an irregular costal spot near base; a dorsal dot at one-fourth; an irregular costal spot near base; a dorsal dot at one-fourth; an irregular bar from one-fifth of costa, reaching three-fourths across wing; a small subdorsal spot before middle; a small triangular spot on costa at two-fifths, and a dot below it; a small triangular spot on costa beyond middle; a transverse S-shaped mark beyond middle towards dorsum, but not reaching it; a discal dot at three-fourths; an irregular transverse line from about three-fourths of costa to tornus, curved outwards from near costa to three-fourths, whence a sharp projection proceeds to touch lower side of preceding discal dot; a slender streak along termen; cilia white, barred with dark fuscous (imperfect). Hindwings white, thinly scaled; costa and apical fourth fuscous, darker towards apex; cilia white, on costa fuscous.

Hoyleton and Ardrossan, South Australia, in August; two specimens.

The form of the transverse line at three-fourths is a characteristic distinction.

Psecadia anthracopis, n. sp.

Female, 25 mm. Head blackish, back of crown white. Palpi blackish, apex of all joints white. Antennæ blackish.

Thorax blackish, four spots arranged in a square, and apical half of patagia white. Abdomen blackish, segmental margins white. Legs black, ringed with white. Forewings elongate, moderate, costa moderately arched, apex obtuse, termen nearly straight, rather oblique; shining white, with blackish-fuscous markings; costal edge blackish-fuscous, interrupted near apex; a small costal spot at base, and a larger one near base, partly connected; a small dorsal spot at one-sixth; a transverse bar from costa at one-fifth, thickened upwards, reaching three-fourths across wing, interrupted on fold; a triangular spot on costa at two-fifths, its apex touching a discal dot; a small subdorsal spot before middle; a small costal spot beyond middle; a subcrescentic spot towards dorsum beyond middle; an elongate spot along costa at three-fourths, containing two white dots; a narrow terminal streak; cilia dark fuscous, spotted with white. Hindwings white, thinly scaled; costa and apical fifth fuscous; cilia white, round apical blotch fuscous mixed with white.

Adelaide, South Australia, in May (O. Lower); one specimen.

Very like the preceding, but larger, and the markings really differ a good deal in detail; the different color of head is an easy distinction. I have also a third species from Queensland (received by the kindness of Dr. A. J. Turner, who will describe it), which is closely allied to the two preceding, but still larger and quite distinct.

Psecadia heptasema, Turn.

(*Psecadia heptasema*, Turn., Trans. Roy. Soc., S. Austr., 1898, 213.)

A distinct species, of which I possess an example received from Dr. Turner. This shows the following modifications of his description; thorax also with two posterior black dots; abdomen light ochreous-yellow; forewings with a series of large black dots along termen, and apical part of costa; hindwings with tornal area whitish-ochreous, yellowish-tinged.

Psecadia hilarella, Walk.

(*Azinis hilarella*, Walk. Tin., 542; *Psecadia hilarella*, Turn., Trans. Roy. Soc., S. Austr., 1898, 213.)

This conspicuous species is sufficiently described by Dr. Turner. It is common throughout a large part of the Indo-Malayan region.

MACROBATHRA, Meyr.

Macrobathra xanthoplaca, n. sp.

Male, 16 mm. Head ochreous-yellow, collar and sides of crown dark fuscous. Palpi ochreous-yellow, terminal joint with longitudinal dark fuscous lateral lines. Antennæ whitish, ringed with dark fuscous. Thorax ochreous-yellow, anteriorly narrowly dark bronzy-fuscous. Abdomen ochreous-yellow. Legs ochreous-yellow, banded with dark fuscous. Forewings elongate-lanceolate; ochreous-yellow; markings dark golden-bronzy-fuscous; a moderate basal fascia, outer edge straight, rather oblique; a narrow slightly curved fascia before middle, and a straight fascia from three-fourths of costa to tornus, connected by an oblique bar from below middle of first to above middle of second; a terminal fascia, almost confluent beneath with preceding; cilia pale ochreous-yellowish, with broad dark bronzy-fuscous bars at apex and above tornus. Hindwings dark fuscous; a short ochreous-whitish median longitudinal streak from base, surrounded with brilliant prismatic scales; cilia bronzy-fuscous, becoming pale yellowish towards tornus.

Melbourne, Victoria (J. A. Kershaw); one specimen.

Macrobathra homocosma, n. sp.

Female, 16 mm. Head shining bronze. Palpi ochreous-white, terminal joint with longitudinal blackish lateral lines. Antennæ white, ringed with blackish. Thorax dark bronze. Abdomen pale ochreous-yellowish. Legs ochreous-whitish, with shining bronzy bands sprinkled with dark fuscous. Forewings elongate-lanceolate; deep shining bronzy-fuscous; markings shining white; a straight oblique fascia from one-fifth of costa to one-third of dorsum; a semi-oval spot on middle of costa, and a larger one at three-fourths; an elongate-triangular prætornal spot; cilia whitish mixed with fuscous (imperfect). Hindwings rather dark grey, lighter anteriorly; cilia whitish grey.

Duaringa, Queensland; in October (G. Barnard); one specimen.

Macrobathra galenæa, n. sp.

Female, 14 mm. Head whitish-ochreous. Palpi whitish-ochreous, terminal joint with longitudinal blackish lateral lines. Antennæ dark fuscous. Thorax dark fuscous, ashy-tinged. (Abdomen broken.) Legs dark fuscous, banded with whitish. Forewings elongate-lanceolate; blackish-fuscous; a

rather oblique whitish-ochreous fascia from one-fifth of costa, reaching two thirds across wing, narrowed beneath; two rounded whitish-ochreous spots on costa at one-half and four-fifths; plical and second discal stigmata whitish-ochreous; a small whitish-ochreous tornal spot; a basal suffusion, a fascia before middle, a second beyond middle not nearly reaching costa, and a spot beyond second discal stigma shining purplish-leaden; cilia dark fuscous, with a whitish-ochreous tornal suffusion. Hindwings grey, darker posteriorly; cilia grey.

Sydney, New South Wales, in April (G. Lyell); one specimen.

Macrobathra epimela, Low.

(*Gelechia epimela*, Low., Trans. Roy. Soc., S. Austr., 1894, 106.)

This is a true *Macrobathra*. I have received the type.

BORKHAUSENIA, Hb.

This name applies to the genus termed *Oecophora* in my papers, the name *Oecophora* being otherwise employed.

Borkhausenia sphaleropis, n. sp.

Male, 18 mm. Head and thorax whitish irrorated with grey. Palpi white sprinkled with dark fuscous, second joint with oblique submedian and narrower apical dark fuscous bands, terminal joint blackish. Antennæ grey. Abdomen whitish-grey. Legs dark grey, ringed with whitish, posterior pair grey-whitish. Forewings elongate, narrow, costa gently arched, apex obtuse, termen very obliquely rounded; pale fuscous, irregularly and suffusedly mixed with whitish, and sprinkled with dark fuscous; an undefined longitudinal streak of dark fuscous suffusion along submedian fold towards base; stigmata very indistinctly indicated, subelongate, dark fuscous, plical obliquely before first discal (but hardly traceable); a faint darker angulated subterminal line; cilia whitish, basal half tinged with fuscous and sprinkled with dark fuscous. Hindwings whitish-fuscous, paler anteriorly; cilia whitish.

Gisborne, Victoria, in May (G. Lyell); one specimen.

BLASTOBASIS, Zell.

Head with appressed hairs; tongue developed. Antennæ two-thirds, in male fasciculate-ciliated (2), with sinuation and notch on upper side above basal joint, suprabasal joint swollen, basal joint in male very broadly dilated and sub-concave beneath, in female moderately dilated, with strong pecten.

Labial palpi moderately long, recurved, second joint thickened with dense appressed scales, more strongly in male, terminal joint shorter than second, in male more or less thickened with dense appressed scales, obtuse or acute, in female moderate, acute. Posterior tibiæ clothed with long hairs above. Forewings: 2 and 3 from angle of cell, 4 and 5 closely approximated, connate, or stalked, 7 and 8 stalked, 7 to costa, 9 and 10 approximated at base, 11 from before middle of cell. Hindwings two-thirds, lanceolate, cilia $2\frac{1}{4}$; 2 remote, 4 absent, 3 and 5 connate or stalked, 6 and 7 tolerably parallel.

A small but very widely distributed genus, with many structural peculiarities. It is a much specialised form in a line of development (probably ancient and once more prevalent than now), of which the three following genera are earlier and little specialised forms, these latter being, in fact, amongst the most primitive of the *Oecophoridæ*. The species are in all regions obscure and closely allied, and require careful attention for their discrimination.

Blastobasis sarcophaga, n. sp.

Male and female, 17-25 mm. Head, palpi, and thorax rather dark shining ochreous-fuscous, more or less mixed with whitish-ochreous; second joint of palpi whitish-ochreous at apex, and on upper half internally, terminal joint acute in both sexes. Antennæ fuscous. Abdomen pale brownish-ochreous, segments with dark bronze median bar. Legs dark fuscous, ringed with whitish-ochreous, hairs of posterior tibiæ whitish-ochreous. Forewings elongate, narrow, long-pointed; bronzy-fuscous, suffusedly mixed with whitish-ochreous and sometimes with dark fuscous, in one specimen much suffused with rather dark fuscous; a cloudy angulated dark fascia before middle, followed by an obscure pale costal spot; a transverse series of three obscure dark spots from three-fourths of costa to tornus, central spot rather nearer base than others; a series of alternate pale and dark spots round termen and posterior part of costa; cilia pale whitish-fuscous, basal half mixed with fuscous. Hindwings fuscous-whitish, becoming light fuscous posteriorly; cilia pale whitish-fuscous.

Sydney, New South Wales, in November, February, and April; five specimens.

Easily distinguished by its large size and especially dark or darkly-marked forewings, contrasting with the especially pale hindwings; also in the male by the acute apex of palpi (which in the next species, the only one comparable with it in

size, is especially obtuse), and absence of any sexual tornal suffusion. Mr. George Masters gave me a specimen which he bred from a larva feeding on dried skins, and my other examples were all taken near houses; it is, therefore, probably semi-domestic, living on dried animal refuse, and may, perhaps, be found to occur also in other countries; the other species, however, occur in native bush, and show no sign of similar habits.

Blastobasis tarda, n. sp.

Male, 13-16 mm.; female, 15-21 mm. Head and thorax light brownish-ochreous, sometimes infuscated. Palpi pale brownish-ochreous, in male with second joint suffused with dark fuscous towards base, with an ochreous-whitish well-defined patch covering upper part of its apical two-thirds on inner side, in female irrorated with fuscous or dark fuscous, terminal joint in male obtuse. Antennæ brownish-ochreous. Abdomen whitish-ochreous. Legs pale ochreous, banded with dark fuscous. Forewings elongate, very narrow, long-pointed; light brownish-ochreous, more or less suffusedly mixed with fuscous; two very indistinct slender dark fuscous transverse fasciæ, first at two-fifths, angulated in middle, second at three-fourths, straight, slightly oblique inwards, tending to be broken into three spots; two or three indistinct dark fuscous marginal dots round apex; cilia pale brownish-ochreous. Hindwings pale brownish-ochreous, more or less infuscated except towards base, in male with reddish-fuscous suffusion towards tornus; cilia pale brownish-ochreous.

Rosewood and Brisbane, Queensland; Newcastle and Sdney, New South Wales; in June, and from August to January, common.

May be known from the three following by its ochreous tinge, they being all grey without ochreous tinge; the male is specially distinguished by the defined pale patch on second joint of palpi internally, and reddish-fuscous tornal suffusion of hindwings.

Blastobasis nephelias, n. sp.

Male, 15-16 mm. Head and thorax grey, whitish-sprinkled. Palpi whitish-ochreous, externally mixed with dark fuscous, apex in male obtuse. Antennæ grey, apex of basal joint whitish. Abdomen grey, anal tuft whitish-ochreous. Legs ochreous-whitish irrorated with dark fuscous, with pale rings. Forewings elongate, very narrow, long-pointed; grey, irrorated with whitish, with some scattered dark grey scales; plical

stigmata dark fuscous, elongate; a dark fuscous tornal dot, and another in disc directly above it; cilia pale fuscous, whitish-sprinkled. Hindwings grey, paler and ochreous-tinged towards base, with a dark grey irroration towards tornus; cilia pale fuscous, towards tornus ochreous-tinged.

Perth and Albany, West Australia, in October and December; two specimens.

Most approaches the preceding, but grey, and with the markings reduced to three defined dots; palpi in male without the characteristic pale patch.

Blastobasis leucotoxa, n. sp.

Male and female, 9-14 mm. Head and thorax fuscous irrorated with white. Palpi in male whitish-ochreous, externally suffused with fuscous, apex obtuse, in female dark fuscous, sprinkled with white, tips of joints white. Antennæ fuscous. Abdomen whitish-fuscous, apex pale ochreous-yellowish. Legs dark fuscous, irrorated and ringed with whitish, hairs of posterior tibiæ whitish. Forewings elongate, narrow, long-pointed; fuscous, more or less suffusedly mixed with white and sprinkled with dark fuscous; a slender angulated dark fuscous fascia at two-fifths, sometimes interrupted, edged anteriorly by a suffused white band; a slightly inwards-curved transverse series of three dark fuscous dots at three-fourths, costa often obsolete; cilia whitish-fuscous. Hindwings pale grey, in male with an ochreous or pale fuscous suffusion towards tornus; cilia whitish-grey-ochreous.

Sydney, New South Wales; Launceston, Tasmania; Geraldton, West Australia; in September, November, January, and February, common.

This and the next species are markedly smaller than the others, and the sexes do not differ noticeably in size, as they do in *B. tarda*. The present species is well distinguished from all others by the white band preceding the dark antemedian fascia; the dark markings are much more conspicuous than usual.

Blastobasis homadelpha, n. sp.

Male and female, 10-13 mm. Head and thorax fuscous, sometimes whitish-sprinkled. Palpi fuscous mixed with dark fuscous, in male internally pale greyish-ochreous, apex obtuse. Antennæ fuscous. Abdomen pale fuscous, extreme apex in female orange, anal tuft in male brownish-ochreous. Legs dark fuscous, paler-ringed. Forewings elongate, very narrow, long-pointed; light fuscous, irrorated with dark fuscous, some-

times with a few ashy-whitish scales; very undefined darker fasciæ at two-fifths and three-fourths, often obsolete, anterior angulated; cilia light fuscous. Hindwings fuscous, paler anteriorly, in male with tornus ochreous-tinged, with a streak of dark fuscous suffusion above it; cilia light ochreous fuscous.

Duaringa and Brisbane, Queensland; Murrurundi and Sydney, New South Wales; Port Lincoln, South Australia; in September, November, and March, common.

Very like the preceding, but much more obscure, slightly narrower-winged, and without the white suffusion.

MIXODETIS, n. g.

Head with appressed hairs; tongue developed. Antennæ three-fourths, in male shortly ciliated (1), basal joint moderate, with strong pecten. Labial palpi moderate, curved, ascending, second joint not reaching base of antennæ, slightly rough beneath, with scales somewhat angularly projecting towards apex, terminal joint shorter than second, roughened with scales anteriorly, pointed. Posterior tibiæ clothed with long hairs above and beneath. Forewings: 2 from angle, 4 absent, 7 and 8 stalked, 7 to termen, 11 from middle of cell. Hindwings two-thirds, lanceolate, cilia 2; 3 and 4 remote, nearly parallel.

Type *M. ochrocoma*, Low.

Mixodetis ochrocoma, Low.

(*Paratheta ochrocoma*, Low., Proc. Linn. Soc., New South Wales, 1899, 100.)

I am indebted to Mr. Lower for examples of this species.

Mixodetis calyptra, Low.

(*Paratheta calyptra*, Low., Proc. Linn. Soc., New South Wales, 1899, 100.)

Of this also I received specimens from Mr. Lower.

PERIALLACTIS, n. g.

Head smooth; tongue developed. Antennæ three-fourths, in male rather strongly ciliated ($2\frac{1}{2}$), basal joint moderately elongate, with pecten. Labial palpi moderately long, recurved, second joint reaching base of antennæ, with loose scales beneath somewhat dilated towards apex, terminal joint almost as long as second, slender, acute. Posterior tibiæ clothed with hairs above and beneath. Forewings: 2 from angle, 7 and 8 stalked, 7 to termen, 11 from before middle of cell. Hindwings under 1, ovate-lanceolate, cilia $1\frac{1}{4}$; 3 and 4 separate, more or less approximated.

Closely allied to *Paratheta*, but with vein 7 of forewings running to termen.

Periallactis monostropha, Low.

(*Aristotelia monstropha*, Low., Trans. Roy. Soc., S. Austr., 1897, 57.)

Male, 12-16 mm. Head, palpi, and thorax fuscous mixed with white. Antennæ fuscous. Abdomen pale fuscous. Legs fuscous, posterior pair ochreous-whitish. Forewings elongate-lanceolate; fuscous, suffusedly irrorated with white; a moderate longitudinal white streak above middle from base to apex, upper edge rather indefinite, lower well-marked, indented in middle and before three-fourths, indicating discal stigmata; fold darkened anteriorly; cilia pale whitish-fuscous. Hindwings fuscous-whitish, becoming pale fuscous posteriorly; cilia ochreous-whitish.

Gisborne, Victoria, in February and March (G. Lyell); six specimens.

Recorded by Mr. Lower from Broken Hill, New South Wales. I have seen his type.

PARATHETA, n. g.

Head with appressed hairs; tongue developed. Antennæ three-fourths, in male moderately or rather strongly ciliated (1-2½), basal joint moderate, with pecten. Labial palpi moderate, curved, ascending, second joint somewhat loosely scaled beneath, not nearly reaching base of antennæ, terminal joint shorter, slender, acute. Posterior tibiæ clothed with very long hairs above and beneath. Forewings: 2 from angle, 7 and 8 stalked, 7 to costa, 11 from before middle of cell. Hindwings somewhat under 1, lanceolate, cilia 1⅔; 3 and 4 remote.

Type *P syrtica*.

Paratheta spodostrota, n. sp.

Male, 16 mm. Head, palpi, and thorax bronzy-fuscous sprinkled with whitish. Antennæ fuscous, ciliations 2½. Abdomen light grey. Legs dark fuscous ringed with whitish, posterior pair whitish. Forewings elongate, costa moderately arched, apex acute, termen extremely oblique, faintly sinuate; bronzy-fuscous, irrorated with white, with a longitudinal white suffusion in disc from two-fifths to four-fifths, and some scattered dark fuscous scales; a dark basal suffusion; an irregular dark fuscous bar from costa beyond one-third, reaching two-thirds across wing, dilated in disc into an irregular spot; an irregular dark fuscous dot above white

discal suffusion at two-thirds; cilia whitish-fuscous, basal half sprinkled with fuscous. Hindwings whitish-fuscous; cilia very pale whitish-fuscous.

Blackheath (3,500 ft.), New South Wales, in September; one specimen.

Easily known by the dark antemedian costal bar.

PARATHETA PHILOSCIA, n. sp.

Male and female, 12-15 mm. Head, palpi, and thorax fuscous, irrorated with whitish. Antennæ pale fuscous, ciliations in male (2½). Abdomen pale fuscous. Legs fuscous, posterior pair ochreous-whitish. Forewings elongate-lanceolate; fuscous, obscurely irrorated with whitish, with scattered dark fuscous; stigmata dark fuscous, plical obliquely before first discal; sometimes a small dark fuscous tornal spot; cilia whitish-fuscous, round apex fuscous sprinkled with whitish. Hindwings whitish-fuscous, darker posteriorly; cilia whitish-fuscous.

Sydney, New South Wales; Gisborne, Victoria; Quorn and Wirrabara, South Australia; in October and November, six specimens.

Distinguished from *P. syrtica* by the absence of the median longitudinal streak of whitish suffusion; the male also differs structurally by the much stronger antennal ciliations.

PARATHETA SYRTICA, n. sp.

Male and female, 12-15 mm. Head and thorax fuscous, whitish-mixed. Palpi rather dark fuscous. Antennæ fuscous, ciliations of male (1). Abdomen fuscous. Legs dark fuscous, whitish-ringed, hairs of posterior tibiæ whitish. Forewings elongate-lanceolate; fuscous, sprinkled with dark fuscous, more or less irrorated with white, with a more or less undefined broad median longitudinal streak of white suffusion; stigmata moderate, dark fuscous, plical very obliquely before first discal; cilia light fuscous, round apex whitish-sprinkled. Hindwings grey, lighter anteriorly; cilia pale greyish-ochreous.

Brisbane, Queensland; Sydney and Bathurst, New South Wales, Launceston, Campbelltown, and Hobart, Tasmania; from August to December, common.

An obscure-looking but easily recognised species.

New Australian Lepidoptera.

By A. Jefferis Turner, M.D., F.E.S.

[Read July 1, 1902.]

The insects described in the present paper belong to various families. Most of them have been in my possession for some time, and they include among others a number of interesting forms, mostly bred from the larvæ, for which I am indebted to Mr. F. P. Dodd, of Townsville. The types of the family *Xyloryctidæ* collected by Mr. Dodd are in the collection of Lord Walsingham, to whom I am indebted for permission to describe them. There are co-types in my own collection. I have also described several species received from Mr. G. Lyell, jun., of Gisborne, from Mr. H. Tryon, Queensland Government Entomologist, and Mr. R. Illidge, of Brisbane.

Among the genera, and almost equally among the families, usually loosely known as "*Bombyces*," there exists at present great confusion in Australian collections. A revision of these families is much needed, and I hope, when time and material (much of it scarce and difficult to obtain) permit, to undertake this, a task in which my recent opportunities of examining Walker's types in the British Museum should prove of service. The *Notodontidæ* I have already in hand, and hope to publish shortly. In the present paper I have received much help by the study of the family and generic definitions in Sir George Hampson's "Moths of India," and in the introduction to his "Catalogue of the Lepidoptera Phalaenæ."

In several instances I have found, after writing my descriptions, that I had been anticipated in the naming of the species, but I have published them, in the hope that they may prove serviceable.

LYMANTRIADÆ.

Porthesia euthysana, n. sp.

Male, 26-30 mm. Head white, mixed with a few ochreous scales on crown. Palpi white, with long ochreous hairs on base beneath. Antennæ whitish-grey. Thorax white, mixed with ochreous. Abdomen dark fuscous; apices of segments and tuft white. Legs white; anterior coxæ, femora, and tibiæ ochreous anteriorly. Forewings triangular, costa strongly arched, apex rounded, termen rounded, oblique; clear white;

costal edge near base ochreous; cilia white; along dorsal margin a fringe of large bright-ochreous scales. Hindwings with termen rounded; white; cilia white.

Mount Tambourine, Queensland, in November and February; four specimens.

PORTHESIA PANABRA, n. sp.

Male, 24-26 mm.; female, 40 mm. Head, thorax, and antennæ white. Palpi white. Abdomen white; tuft bright ochreous. Legs white. Forewings triangular, costa strongly arched, apex rounded, termen rounded, oblique; clear white; costal edge near base ochreous; cilia white; along dorsal margin a fringe of white scales, mixed with a few larger pale ochreous scales. Hindwings with termen rounded; white; cilia white.

Closely allied to the preceding, but the abdomen is white, and ochreous coloring much less pronounced.

Brisbane and Mount Tambourine, Queensland, in March and April; three specimens.

PORTHESIA GALACTOPIS, n. sp.

Male, 18-25 mm.; female, 26-30 mm. Head, thorax, and antennæ white. Palpi white, external surface in male pale ochreous. Abdomen white; tuft ochreous, in male sometimes whitish. Legs white; anterior pair in male ochreous-tinged. Forewings triangular, costa rather strongly arched, especially in female, apex rounded, termen oblique, scarcely rounded in male, rounded in female; dull milk-white; base of costal edge ochreous in male; cilia white. Hindwings with termen rounded; white; cilia white.

Best distinguished from the preceding by the absence of ochreous scales on dorsal margin of forewings.

Mareeba and Townsville, Queensland, from May to October; common.

PORTHESIA FIMBRIATA, Luc.

(*Teara fimbriata*, Luc. Proc. Linn. Soc., N.S.W., 1891, p. 285.)

Forewings of male pale ochreous-yellow, more or less suffused with purple-grey, leaving a wavy-margined ochreous-yellow terminal band, and sometimes also a costal streak of the same color; cilia ochreous-yellow. Hindwings ochreous-whitish; cilia pale ochreous. Female with both wings and cilia whitish.

Stradbrooke Island, Queensland, in October; locally common.

Porthesia lutea, Fab.

(*Artaxa chrysophila*, Wlk. Suppl. 334; ?*Artaxa varians*, Wlk., iv., 796; *Porthesia iobrota*, Meyr. Trans. Roy. Soc., S.A., 1891, p. 194; *Artaxa chrysophœa*, Luc. Proc. Linn. Soc., N.S.W., 1892, *nec* Wlk.

This species varies in size and intensity of coloring, specimens from southern Queensland excelling in both respects. There is a variety occasionally met with in both sexes with hindwings irrorated with fuscous.

Cairns, Kuranda, Townsville, Rockhampton, and Brisbane, Queensland; common.

Euproctis chionitis, n. sp.

Male, 25-29 mm.; female, 31-35 mm. Head white, tinged with pale ochreous on crown. Pale ochreous. Antennæ white. Thorax and abdomen white; tuft in male white or orange, in female ochreous. Legs white; anterior coxæ and inner surface of anterior femora and tibiæ bright ochreous in male. Forewings triangular, costa rather strongly arched, apex rounded, termen oblique, rounded; snow white; base of costal edge ochreous; cilia white. Hindwings with termen rounded; color and cilia as forewings.

Vein 9 of forewings is absent in this species.

Cardwell and Brisbane, Queensland; common.

This species has stood in collections as *obsoleta*, Fab. I have seen the Fabrician type of *obsoleta* in the British Museum, and identify it with *Laelia eremœa*, Meyr.

Euproctis amphideta, n. sp.

Male, 26 mm. Head, palpi, and antennæ pale yellow. Thorax and abdomen ochreous-yellow. Legs pale yellow. Forewings triangular, costa rather strongly arched, apex rounded, termen slightly rounded, slightly oblique; vein 9 absent; orange-ochreous, suffused with pale grey except near costa, and a spot in disc beneath mid-costa; a pale yellowish terminal band, indented at two-fifths of termen; cilia pale yellowish. Hindwings with termen rounded; ochreous-yellow; cilia pale yellowish.

This pretty species recalls *Porthesia fimbriata*, Luc., in its markings.

Townsville, Queensland, in March and April; two specimens received from Mr. F. P. Dodd.

EUPROCTIS CHRYSOPHÆA, Wlk.

(*Orgyia chrysophœa*, Wlk. Suppl. 324; *Artaxa cervina*, Moore. Ann. Nat. Hist., 1877, 345, Lep. Ceylon, pl. 112, f. 3; *Artaxa lucifuga*. Luc. Proc. Linn. Soc., N.S.W., 1892, 250.)

Male, 17-21 mm. Forewings fuscous-orange or orange-ochreous, with two pale transverse lines, median and post-median, the first usually obsolete, the second often indistinct; in pale varieties the space between lines may be occupied by a darker fuscous; cilia deep yellow. Hindwings dark grey, without orange or ochreous tinge; cilia yellow.

Female, 25 mm. Forewings elongate-oval; pale ochreous; cilia pale ochreous. Hindwings whitish-grey; cilia pale ochreous.

The males are very variable in depth of coloring, appearing on the whole to be darker in cool, paler in hot climates.

Townsville and Brisbane, Queensland; the males not uncommon, the female rarely taken; also from India and Africa. Walker's type is from Abyssinia.

EUPROCTIS HOLOXUTHA, n. sp.

Male, 36 mm. Head, palpi, antennæ, and thorax dull orange-ochreous. Abdomen deep orange, tuft but slightly paler. Legs pale ochreous. Forewings triangular, costa moderately arched, apex round-pointed, termen slightly rounded, oblique; dull orange-ochreous; a pale ochreous spot in disc beneath two-fifths costa; cilia ochreous. Hindwings with termen rounded; pale yellow, towards inner margin suffused with orange; cilia pale yellow.

This appears to be doubtfully distinct from *E. crocea*, Wlk., of which I only know the type (a female) in the British Museum, said to be from Moreton Bay. Further material is desirable.

Townsville, Queensland, in August; one bred specimen in perfect condition received from Mr. F. P. Dodd. There are a male and female of this species in the British Museum from Adelaide River, North Australia; and another pair in the Queensland Museum.

EUPROCTIS SCOTOCHYTA, n. sp.

Male, 16 mm. Head, palpi, and thorax deep yellow. Antennæ yellowish. Abdomen grey; tuft and sometimes apices of segments pale ochreous. Legs whitish-ochreous. Forewings triangular, costa moderately arched, apex rounded, termen rounded, oblique; dark grey, with scattered ochreous scales, towards base and sometimes towards costa suffused with

ochreous-yellow; costal edge ochreous-yellow; cilia pale ochreous. Hindwings with termen rounded; dark grey; cilia grey or whitish-ochreous.

Allied to *E. chrysophœa*, Wlk., but smaller, and with the wings nearly concolorous.

Kuranda and Townsville, Queensland, in October and January; two specimens. I should like to see the female of this species.

EUPROCTIS ARROGANS, Luc.

(*Artaxa arrogans*. Luc. Trans. Roy. Soc., Queensland, 1899, 140.)

Male and female, 44-46 mm. Head, thorax, abdomen, and forewings reddish-orange; apical tuft of abdomen white. Hindwings ochreous or orange-ochreous.

I think this is Lucas' species, though he does not mention the white tuft of abdomen.

Cairns and Johnstone River, Queensland, in June and November; two specimens. There is a female in the British Museum from Woodlark Island.

EUPROCTIS HABROSTOLA, n. sp.

Male, 43 mm.; female, 58 mm. Head, thorax, and antennæ whitish-ochreous. Face and palpi ochreous. Abdomen blackish, towards base ochreous; lower surface ochreous; tuft whitish. Legs whitish-ochreous. Forewings triangular, costa moderately arched, apex rounded, termen slightly rounded, oblique; creamy-whitish without markings; cilia creamy-whitish. Hindwings with termen rounded; deep yellow; base to one-third suffused in female with dark fuscous, which extends whole length of inner margin; cilia yellow.

Allied to *E. uniformis*, Moore, from India.

Townsville, Queensland, in March; one specimen bred by Mr. F. P. Dodd from a larva feeding on *Melaleuca*. There is a male from Rockhampton, Queensland, in the Queensland Museum.

EUPROCTIS NIPHOBOLA, n. sp.

Male and female, 37-42 mm. Head, thorax, palpi, and antennæ fuscous; face in male brown, in female fuscous. Abdomen dark fuscous; tuft in male ochreous in female grey. Legs fuscous. Forewings elongate-triangular, costa moderately arched, apex round-pointed, termen very oblique, in male straight, in female slightly rounded; fuscous, sparsely irrorated with large triangular white scales, more densely in posterior part of disc; a dark fuscous discal dot

beneath mid-costa; a straight suffused sub-terminal white shade, better marked in female; a row of white spots along termen, better marked and confluent on margin in female; cilia fuscous. Hindwings with termen but slightly rounded; fuscous; a whitish terminal band, intersected by veins, narrowing to a point at ternus.

Allied to *baliolalis*, Swin., which is also referable to this genus.

Brisbane (male type), Queensland, in February. The female (sent by Mr. F. P. Dodd) from Townsville, Queensland, in September.

ACNISSA, n. g.

Head normal. Tongue weak. Palpi obliquely porrect, moderate, one and a half times breadth of eye, terminal joint minute. Antennæ bipectinated in both sexes, more shortly in female. Thorax loose-scaled, with an erect posterior crest. Abdomen smooth, slender in both sexes. Legs normal. Forewings with vein 2 from two-thirds, 3 from before angle, 4 from angle, 5 from cell well separated from 4, 6 from below upper angle of cell, 7 from upper angle, 8, 9, 10 stalked from before angle, well separated from 7. Hindwings with 3 and 4 approximated at base, 5 nearer 4 than 6, 6 and 7 connate, 8 anastomosing shortly with cell near base.

Allied to *Euproctis*, but at once distinguished by the wide separation of vein 7 from 8, 9, 10.

ACNISSA PYRRHIAS, n. sp.

Male and female, 16-20 mm. Head, thorax, and palpi bright reddish-brown. Antennæ grey. Abdomen ochreous, more or less suffused with fuscous. Legs fuscous; posterior pair whitish-ochreous. Forewings elongate-triangular, costa strongly arched at base, thence nearly straight, apex somewhat pointed, termen straight, rounded beneath, slightly oblique; dull reddish, sparsely irrorated with fuscous; a fuscous transverse fascia, anterior edge dentate from one-fourth costa to one-third dorsum, posterior edge also dentate from slightly beyond mid-costa to dorsum at two-thirds; on each border of fascia is a suffused brighter red line; a faint dark sub-terminal shade; a fine fuscous terminal line; cilia reddish, apices fuscous. Hindwings with termen rounded, fuscous, base pale reddish, sometimes wholly pale reddish; cilia reddish.

Townsville, Queensland, from December to May; three specimens received from Mr. F. P. Dodd.

LYMANTRIA AURORA, Wlk. (?)

I describe this species by the name by which it is known in Australian collections, but have not been able to discover Walker's description. It is not contained in the British Museum catalogue.

Male, 52 mm. Head whitish; posterior margin narrowly red. Palpi dark fuscous; apex whitish. Antennæ black, pectinations whitish. Thorax whitish. Abdomen bright red; a whitish basal spot; a series of four median blackish spots on apical segments; tuft ochreous. Legs whitish, mixed with red, tarsi annulated with black. Forewings triangular, costa moderately arched, apex round-pointed, termen slightly rounded, oblique; grey-whitish, markings dark fuscous; extreme base of costal edge red; a spot on base of costa, and another on mid-base; a spot beneath costa at one-eighth, and another beneath it on fold; a thick wavy line from one-fourth costa to two-fifths dorsum; a small median discal dot; a thick wavy sigmoid line from costa just beyond middle to dorsum at two-thirds; a fine acutely dentate line from costa at three-fourths to before tornus, partly confluent with previous line near dorsum; a row of terminal dots; cilia grey-whitish. Hindwings with termen rounded; ochreous-whitish suffused with pale red, especially towards costa and inner margin; cilia whitish, at apex and inner margin ochreous-reddish.

Female with wings aborted; whitish; forewing crossed by two interrupted dark fuscous lines beyond middle. Head and thorax whitish. Antennæ whitish, pectinations black. Abdomen very large; pale ochreous-brown.

Closely allied to *L. antennata*, Wlk., which has fuscous hindwings, and the markings of forewings more suffused.

Townsville, Queensland, in June; a pair received from Mr. F. P. Dodd, who says the larvæ feed on *Eucalyptus tessellaris* and other trees, and to pupate suspend themselves among a few golden-colored threads under leaves or between loose strips of bark.

LAELIA OSTRACINA, n. sp.

Female, 36 mm. Head, palpi, and thorax whitish. Antennæ broken. Abdomen ochreous-whitish. Legs whitish. Forewings elongate-triangular, costa rather strongly arched, apex round-pointed, termen slightly rounded, oblique; white; a longitudinally oval spot in disc near base, reddish-brown mixed with dark fuscous; a large irregularly shaped irroration in disc beyond middle, of reddish-brown and dark fuscous, touching costa, broadest towards costa, narrowing towards and

not reaching dorsum; an incomplete interrupted narrow dark fuscous sub-terminal line; cilia white. Hindwings with termen rounded; white; cilia white.

Cooktown, Queensland; one specimen in Coll. Lyell.

ANTHELA PHŒNICIAS, n. sp.

Male, 36-42 mm. Head, palpi, antennæ, thorax, and abdomen vinous-purple. Legs vinous-purple. Forewings triangular, costa straight, apex rounded, termen rather strongly bowed, slightly oblique; vinous-purple without markings; cilia vinous-purple. Hindwings with termen rounded; vinous-purple; cilia vinous-purple.

The coloring is uniform throughout. There is a specimen of this species unnamed in the British Museum. It does not correspond to any of Walker's types.

Brisbane and Stanthorpe, Queensland, in January and February; two specimens. There is also a specimen in Coll. Lyell from Roeburne, North-West Australia.

Anthela (type *ferruginosa*, Wlk., iv., 854) includes and supersedes *Darala* (type *ocellata*, Wlk., iv., 887.)

ANTHELA ASPILOTA, n. sp.

Female, 44 mm. Head, palpi, antennæ, thorax, abdomen, and legs pale brownish-ochreous. Palpi with loose spreading hairs. Forewings triangular, costa moderately arched, apex rounded, termen rounded, oblique, rather thinly scaled; pale brownish-ochreous; cilia pale brownish-ochreous. Hindwings with termen rounded; vein 8 connected by a bar with cell; pale brownish-ochreous; cilia pale brownish-ochreous.

Another unicolorus species for which I can find no name.

Stanthorpe, Queensland, in January; one specimen.

ANTHELA NEUROSPASTA, n. sp.

Male, 38 mm. Head, thorax, and abdomen whitish; face and palpi ochreous. Antennæ whitish, pectinations brownish-fuscous. Legs fuscous, posterior surfaces whitish. Forewings triangular, costa straight, slightly arched towards apex, apex rounded, termen strongly rounded, slightly oblique; whitish, with pale fuscous streaks; a streak along costa, a second from disc at one-fourth to termen, a third along fold and continued to tornus; six shorter streaks running into termen, three above and three beneath median streak; cilia whitish. Hindwings with termen rounded; color and markings as forewings, but costal streak absent, and dorsal streak not continued to base.

Cooktown, Queensland; one specimen in Coll. Lyell.

EUPTEROTIDÆ.

EPICOMA ZELOTES, n. sp.

Male, 30-33 mm. Head whitish, face ochreous. Antennæ dark grey. Thorax pale grey. Abdomen blackish; tuft and a series of median spots ochreous. Legs dark fuscous, mixed with ochreous. Forewings elongate-triangular, costa slightly arched, apex round-pointed, termen rounded, oblique; snow-white; costa and dorsal margin irrorated with dark fuscous and ochreous; a roundish discal spot beneath mid-costa, ochreous margined with dark fuscous; an inwardly oblique, slightly sigmoid, broad, ochreous-fuscous line from costa at four-fifths to dorsum at three-fourths; cilia bright ochreous, apices and a series of 4 basal spots dark fuscous. Hindwings with termen rounded; yellow-ochreous; a narrow blackish fascia at four-fifths, parallel to termen; a faint fuscous subterminal line; cilia ochreous.

Female differs as follows: 34-36 mm. Face grey. Forewings more irrorated and oblique line paler. Hindwings dark fuscous, extreme base whitish-ochreous, with a terminal series of ochreous spots.

There is a closely allied species in the British Museum from Adelaide River, North Australia.

Townsville, Queensland, in November and December; four specimens received from Mr. F. P. Dodd, who bred them from larvæ feeding gregariously on *Eucalyptus platyphylla*, hiding by day at the foot of the tree or under loose bark. There is also a male specimen in Coll. Lyell from Cape York, Queensland. The last has the hindwings less brightly colored, and with a broader dark band than the Townsville specimens.

EPICOMA ASBOLINA, n. sp.

Female, 36 mm. Head, antennæ, and thorax blackish. Abdomen blackish; tuft ochreous. Legs blackish. Forewings triangular, costa gently arched, apex round-pointed, termen rounded, oblique; brown-whitish, costal and dorsal edge and a broad terminal band suffused with blackish; a blackish discal spot beyond middle; a terminal series of large oval or oblong white spots; cilia blackish. Hindwings with termen rounded; blackish; sub-terminal spots and cilia as forewings.

Townsville, Queensland, in June; one specimen received from Mr. F. P. Dodd. There is a female specimen in the Queensland Museum from Bowen, Queensland, and another in the British Museum from Port Darwin, North Australia.

BOMBYCIDÆ.

Ocinara lewinæ, Lew.

(*Clisiocampa lewinæ*, Lew. Prodr. Ent. 7, t. 6, 1807; *Pamea transiens*, Wlk., v., 1156; *Oreta sobria*, Wlk., v., 1168; *Eriogaster simplex*, Wlk., vi., 1473; *Naprepa pilosa*, Wlk., Suppl. 489; *Naprepa hirta*, Wlk., Suppl. 490; *Trilocha rufescens*, Wlk., Suppl. 546; *Semuta pristina*, Wlk., Suppl. 547.)

Walker described this species seven times in six different genera, referred to four different families. This should be a warning to later authors, as showing how uselessly the study of entomology may be rendered more difficult by the description of species without accurate investigation of their structural characters.

I have verified this synonymy from the types in the British Museum. The two sexes differ, and both are variable, but not to any extraordinary degree.

Brisbane, Queensland; the larvæ feed gregariously on *Tristania conferta*.

Andraca adoxima, n. sp.

Male, 42 mm. Head, whitish-ochreous. Antennæ grey. Thorax pale reddish-brown. Abdomen whitish-ochreous. Legs brownish. Forewings triangular, costa straight to near apex, apex rounded, termen long, rounded, strongly oblique; pale ochreous-grey towards base suffused with pale reddish-brown; an outwardly curved reddish-brown line from costa at one-third to dorsum at three-fifths; a broader line from costa at two-thirds to dorsum at four-fifths; a faintly marked spot in disc beneath mid-costa; cilia reddish-brown. Hindwings with termen strongly bowed, inner margin curved downwards, reddish-brown; a pale ochreous-grey terminal band, broad at apex, thence narrowing and not reaching tornus; cilia pale ochreous-grey.

This and the preceding are the only Australian species of *Bombycidæ* known to me.

Brisbane, Queensland; one specimen.

LASIOCAMPIDÆ.

Crexa hyaloessa, n. sp.

Male, 30-32 mm. Head white. Palpi brown; base of second joint with a white spot on under surface. Antennæ fuscous. Thorax fuscous, mixed with white. Abdomen dark fuscous, sometimes with a few white scales on dorsum. Legs fuscous mixed with whitish. Forewings elongate-triangular, costa nearly straight to near apex, slightly sigmoid, apex round-

pointed, termen long, slightly rounded, very oblique; translucent, being only very thinly covered with fine blackish hairs except along costa and dorsum, and at apex, base, and discal spot; costal half of basal area whitish, dorsal half dark fuscous mixed with whitish and brownish; a fine white line from one-fourth costa to one-third dorsum; a broad brown streak irrorated with white scales along dorsum to tornus; an oval black spot above mid-dorsum; a black discal spot at end of cell; veins outlined in brownish mixed with whitish; a white dot on costa at three-fourths, from which a faint oblique slightly sigmoid white line proceeds to dorsum at two-thirds; a fuscous suffusion at apex; two black dots sometimes followed by a third minute dot between veins near apex; a very fine crenate white sub-terminal line immediately follows these, and is continued to dorsum; cilia very short, blackish tipped with whitish. Hindwings produced at tornus, termen slightly rounded; translucent with veins outlined as in forewings; towards inner margin covered with long grey hairs mixed with whitish; a white line from two-thirds costa to tornus; cilia as forewings.

Closely allied to *Crexa punctigera*, Wlk., *anthraxoides*, Wlk.), but differs in having only a single discal spot and the sub-terminal spots mostly obsolete.

Brisbane, Queensland, January to March; four specimens.

Crexa punctigera, Wlk.

(*Entometa punctigera*, Wlk., iv., 974 (male); *Mecytha trimacula*, Wlk., v., 1122 (female); *Crexa anthraxoides*, Wlk., Suppl. 1927 (male); *Dichromosoma majus*, Feld., pl. lxxxiii., f. 26 (female).

Mr. Lyell informs me that he took six similar larvæ in a crevice in the bark of *Exocarpus cupressiformis*, and bred two males and three females.

Clathe pyrsocoma, n. sp.

Male, 28 mm.; female, 36 mm. Head, palpi, and thorax purple-reddish. Antennæ purple-reddish, pectinations whitish-ochreous. Abdomen purple-reddish. Legs purple-reddish. Forewings triangular, costa in male straight to near apex, in female gently rounded, apex round-pointed, termen rounded, slightly oblique; dull-reddish finely irrorated with whitish hairs; dorsum sometimes narrowly suffused with fuscous; a median fuscous discal dot; in female a fine, crenulate, outwardly curved line from three-fifths costa to mid-dorsum, obsolete in male specimen; a sub-terminal series of minute fus-

cous dots; cilia reddish mixed with fuscous and whitish. Hindwings with termen rounded; purple-reddish; cilia reddish.

Brisbane, Queensland; two specimens taken by Mr. R. Illidge.

I think that Walker's genera—*Clathe*, *Callia*, and *Sitina*—may have ultimately to be merged in one.

CLATHE ANTHRACICA, n. sp.

Male, 32 mm. Head whitish; sides of face orange-ochreous. Palpi orange-ochreous. Antennæ ochreous, pectinations blackish. Thorax blackish, bases of patagia whitish. Abdomen blackish, tuft whitish. Legs blackish; anterior pair thickly coated with whitish hairs on external surface; all tarsi orange-ochreous annulated with blackish. Forewings elongate-triangular, costa straight, slightly arched towards apex, apex rounded, termen slightly rounded, oblique; blackish centre of disc thinly scaled; a small whitish discal dot above mid-disc, and a whitish irroration between this and dorsum; basal part of costal edge ochreous; veins interruptedly marked with ochreous; cilia blackish, sharply barred with white. Hindwings with termen rounded; blackish; cilia as forewings.

Allied to *Clathe arida*, Wlk. (*Listoca lignaria*, Wlk., *Sorema unbila*, Wlk., *Perna metastigma*, Wlk.), but readily distinguished by its blackish coloring.

ENTOMETA CYCLOLOMA, n. sp.

Male, 40 mm., Head, thorax, and abdomen pale ochreous, intimately mixed with reddish-purple-grey. Palpi three times breadth of eye, purple-grey. Legs purple-grey. Forewings triangular, costa towards base straight, towards apex rather strongly arched, apex rectangular, termen straight, slightly oblique; pale ochreous intimately mixed with reddish-purple-grey; markings fuscous; an outwardly curved faint line from one-fourth costa to one-fourth dorsum; a discal dot at one-third; a second faint line bent inwards in disc, from two-thirds costa to mid-dorsum; a faintly marked oblique row of dots mid-way between this and dorsum; cilia reddish-purple-grey. Hindwings rather narrow and very distinctly elongate, termen prominently rounded; reddish-purple-grey; cilia reddish-purple-grey, on inner margin whitish.

In coloration and general appearance this resembles *E. australasiæ*, Fab. (of which I believe *intemerata*, Wlk., to be a synonym), but the shape of the hindwings is very different. The palpi are also rather shorter.

Cooktown, Queensland; one specimen in Coll. Lyell.

SYMPHYTA, n. g.

Head with projecting cone of scales. Palpi moderate, not longer than twice breadth of eye, clothed with dense hairs, terminal joint concealed. Thorax and abdomen not crested. Mid and hind tibiæ with one pair of minute terminal spurs. Forewings with 2 from near base, 4 and 5 from angle, 6 and 7 stalked, 8 to termen, 9 and 10 stalked. Hindwings with 4 and 5 stalked (rarely 3, 4, 5 stalked), 7 arising near base of cell and anastomosing with 8, several acessory veinlets.

May be distinguished from *Entometa*, Wlk. (*Opsirrhina*, Wlk.) by the shorter palpi, and from *Callia*, Wlk., *Sitina*, Wlk., and *Clathe*, Wlk., by the stalking of veins 4 and 5 of hindwings.

Type *S. psaropis*.

SYMPHYTA PSAROPIS, n. sp.

Male, 38-40 mm.; female, 50 mm. Head, palpi, thorax and abdomen whitish-grey. Antennæ white; pectinations ochreous-whitish. Legs whitish-grey. Forewings triangular, in female elongate-triangular, costa straight to near apex, apex round-pointed, termen straight, in female slightly rounded, oblique; whitish-grey, thinly irrorated with grey; a dark fuscous dot in disc at one-third; cilia white, bases dark fuscous, sometimes apices also barred with dark fuscous. Hindwings with termen strongly bowed; whitish-grey suffused with darker grey, towards inner margin whitish; cilia whitish with a median dark fuscous line.

Townsville, Queensland, in January and February; three specimens received from Mr. F. P. Dodd.

SYMPHYTA NYCTOPIS, n. sp.

Male, 35 mm.; female, 50 mm. Head, palpi, thorax, and abdomen fuscous. Antennæ whitish-ochreous. Legs fuscous. Forewings triangular, costa straight to near apex, apex rounded, termen rounded, oblique; fuscous; a dark fuscous spot in disc at one-third; cilia dark fuscous, apices barred with white. Hindwings with termen rounded; pale fuscous; cilia fuscous, barred with whitish.

Townsville, Queensland, in February and June; two specimens (the male in poor condition) received from Mr. F. P. Dodd, who has found the larvæ on *Eucalyptus platyphylla*.

PYRALIDÆ.

DODDIANA, n. g.

Frons flat, not prominent. Tongue present. Antennæ in male minutely ciliated (one-sixth). Maxillary palpi filiform,

closely appressed to labial palpi. Labial palpi porrect; in male 1½ with terminal joint concealed; in female 3 with terminal joint evident, down-curved. Thorax smooth. Forewings with a crest of scales, near base of dorsum and in disc; vein 1 strongly furcate at base, 4 and 5 short-stalked, 6 from cell, 7 stalked with 8, 9 absent (fused with 8), 10 short-stalked with 8. Hindwings with 4 and 5 closely approximated at base, 8 anastomosing with 7.

I dedicate this genus to Mr. F. P. Dodd, who has done so much to increase our knowledge of the moths of Northern Queensland, especially by his keen and patient labors in the discovery and rearing of the larvæ.

Doddiana callizona, Low.

(*Stericta* (?) *callizona*, Lower, Trans. Roy. Soc., S.A., 1896, p. 155.)

Male and female, 25-34 mm. Head purplish; face and palpi dark fuscous. Antennæ ochreous-brown. Thorax purplish, with some whitish scales towards sides. Abdomen purplish-brown; towards apex dark fuscous. Legs dark fuscous; anterior femora and tibiæ purplish; posterior pair mostly ochreous-whitish. Forewings elongate-triangular, costa straight, apex rounded, hindmargin slightly oblique, slightly rounded, with a prominent tuft of scales on inner margin at one-fourth; purplish; a triangular dark green shade on costa from one-sixth to middle, its apex extending to above middle of inner margin; bounded anteriorly by an outwardly curved white suffusion; beyond this costal part of disc is irrorated with white; a narrow irregularly dentate dark fuscous line from costa at four-fifths to before tornus; preceded by a dark fuscous discal dot; succeeded by a fine line, whitish on margins, bluish on upper half, obsolete on lower half; a blackish circular blotch before apex, with a greenish centre; some whitish and greenish scales near termen; cilia purplish, bases whitish, with an interrupted blackish line at one-third. Hindwings much broader than forewings, hindmargin rounded; grey; towards base paler, and with traces of a pale line at two-thirds; cilia pinkish, with a fuscous line at one-third.

A beautiful and very distinct species.

Townsville, Queensland, a series reared by Mr. F. P. Dodd, in August and September. The larvæ bore the smaller stems of *Timonius rumphii* to the depth of six, nine, or even fifteen, inches, the tunnelled twigs with their affixed masses of silk, woody fragments, and leaves, exactly resemble those tenanted

by many species of *Xyloryctidæ*. When pupating the larva, however, reverts to its pyralid habits, for it quits its tunnel and spins a loose cocoon in the mass at its mouth.

LIMACODIDÆ.

Doratifera stenora, n. sp.

Male and female, 26-30 mm. Head brown; in female suffused with whitish-ochreous; a patch of whitish-ochreous scales beneath roots of antennæ. Palpi brown. Antennæ brown-whitish. Thorax brown; in female with some central reddish-orange hairs. Abdomen brownish with a dorsal reddish-orange line, most developed in female. Legs brown. Forewings elongate-triangular, costa straight, apex round-pointed, termen rounded, strongly oblique; dull fuscous-brown or reddish-brown; an oblique whitish streak from apex towards mid-dorsum, becoming lost in disc; cilia brown. Hindwings with termen rounded; brown; cilia brown.

Rockhampton, Queensland; two specimens in the Queensland Museum.

Doratifera chrysochroa, Feld.

(*Lamprolepis chrysochroa*, Feld., pl. lxxxii., f. 13; *Doratifera euchrysa*, Low., Trans. Roy. Soc., S.A., 1896, p. 152.)

I have received a fine series of this beautiful insect from Mr. F. P. Dodd, who found the larvæ at Townsville feeding gregariously on *Careya australis* and other trees.

Apodecta, n. g.

Face with rounded anterior cone of scales. Palpi stout, rather long (twice breadth of eye), porrect; terminal joint very short. Antennæ of male bipectinated on basal half. Posterior tibiæ with two pairs of well-developed spurs. Forewings with vein 2 from two-thirds, 3 from before angle, 4 from angle, 6 from middle of cell, 7 short-stalked with 8, 9, 10 absent. Hindwings with 3, 4, and 5 remote at base, 6, 7, stalked.

Characterised by the absence of vein 10 of forewings.

Apodecta monodisca, n. sp.

Male, 16 mm. Head, thorax, and abdomen white, tinged with grey. Palpi whitish, with a few dark fuscous scales. Antennæ ochreous-whitish. Legs whitish mixed with dark fuscous. Forewings broadly triangular, costa slightly arched, apex rounded, termen rounded, oblique; grey with a very few scattered dark fuscous scales; a squarish white spot beneath mid-costa, its lower anterior angle connected by a

conspicuous white line with dorsum beyond middle; a dark-fuscous short transverse bar from costa beyond middle, succeeded by a squarish dark-fuscous subcostal blotch, evenly and narrowly margined with white; a faint whitish line from posterior edge of blotch towards tornus; a suffused white line close to termen; cilia grey, bases whitish. Hindwings with termen rounded; pale brownish; cilia whitish-grey, with a white median line.

Townsville, Queensland, in September; one specimen received from Mr. F. P. Dodd.

BIRTHAMA PLAGIOSCIA, n. sp.

Male, 22 mm.; female, 29 mm. Head, palpi, thorax, and abdomen dark brown. Antennæ whitish-ochreous, in female dark fuscous. Legs dark brown. Forewings triangular, costa incurved in male, or straight in female to near apex, apex much rounded, termen long, rounded, strongly oblique; dark brown; an oblique darker shade from near costa at three-fourths to mid-dorsum, well marked in female, nearly obsolete in male; a broad dark shade from costa immediately beyond this line, not extending more than one-third across disc; cilia dark brown. Hindwings with termen rounded; fuscous or dark brown; cilia concolorous.

Brisbane, Queensland; three specimens. Mr. R. Illidge has bred this species.

The genus *Birthama*, Wlk., with vein 7 of forewings separate, and veins 8, 9, 10 stalked, is connected with the following genera (which have 7, 8, 9 stalked) by *Natada*, Wlk., with 8, 9 stalked, 7 and 10 separate. To *Natada* I refer *Doratifera ordinata*, Butl., *colligans*, Luc.

BIRTHAMA DISCOTYPA, n. sp.

Male, 22 mm. Head, palpi, and thorax brownish-fuscous. Antennæ ochreous-fuscous; male with long double pectinations on basal two-fifths, thence slightly serrate. Legs fuscous. Forewings triangular, costa straight to near apex, apex rounded, termen rounded, slightly oblique; brownish-grey with a few dark fuscous scales; a large circular fuscous brown patch, edged posteriorly with white on dorsum from near base to middle; a similar circular white-edge patch on costa from three-fifths to near apex; cilia grey. Hindwings with termen rounded; dark grey; cilia grey.

Queensland (?), one specimen without locality in the collection of the Agricultural Department.

Susica dochmosema, n. sp.

Female, 40 mm. Head and palpi pale reddish. Thorax brown, in centre reddish. Abdomen brown, legs brownish; tarsi annulated with dark fuscous; anterior tibiæ and middle tibiæ and first joint of tarsi with reddish hairs above. Forewings triangular, costa rather strongly arched, apex rounded, termen rounded, oblique; brown; costal edge reddish; a wavy oblique fuscous line from mid-dorsum to beneath costa at three-fourths; cilia brown. Hindwings with termen rounded; brown-whitish; cilia brown-whitish; apices whitish.

To this genus I also refer *corones*, Feb. (*Miresa humeralis*, Wlk., and *Miresa albibasis*, Wlk.), and *Comana collaris*, Wlk. It is distinguishable from *Miresa*, Wlk. (according to Hampson's "Moths of India") by the male having two pairs of spurs on posterior tibiæ.

Rockhampton, Queensland.

Type in the Queensland Museum.

Susica miltocosma, n. sp.

Female, 48 mm. Head ochreous-grey, margins of face bright red. Palpi bright red. Thorax ochreous-grey more or less rosy-tinged. Abdomen white. Legs whitish, anterior pair brightened above, with black dots on apices of femora and bases of tarsal points. Forewings triangular, costa moderately arched, apex rounded, termen rounded, slightly oblique; ochreous-grey more or less rosy-tinged; costal and terminal margins red; cilia grey, bases ochreous-tinged. Hindwings with termen rounded; white; cilia white.

Male, 33 mm. Antennæ bipectinated to two-thirds. Head and thorax bright red. Forewings bright red, with an oblique outwardly curved fuscous shade from mid-dorsum reaching to mid-disc.

Townsville, Queensland, in December; two female specimens received from Mr. F. P. Dodd. The male is in the Queensland Museum, from Rockhampton. I believe them to be sexes, but regard the female as the type.

Tetraphleps paroa, n. sp.

Female. 36 mm. Head brown, lower edge of face dark fuscous. Palpi dark fuscous. Antennæ fuscous. Thorax dark brown; collar paler. Abdomen reddish-brown. Legs dark fuscous, tarsi annulated with brownish. Forewings triangular, costa rather strongly arched, apex rounded, termen rounded, oblique; fuscous-brown; lines dark fuscous; a short line from dorsum at one-fourth to fold, produced along fold

towards base; a line from mid-costa angulated sharply inwards in disc and again sharply to mid-dorsum, a line from costa at two-thirds with acute projections posteriorly along veins, angulated inwards along vein 2, and then bent to dorsum near tornus; the space between these lines is suffused with reddish-brown, and contains some dark fuscous streaks along veins; a fine terminal line; veins in terminal part of disc marked with darker scales than intervening spaces; cilia brown, with a darker median line. Hindwings with termen rounded; reddish-brown; cilia reddish-brown.

Brisbane, Queensland; one specimen in the collection of the Agricultural Department.

PARASA CORALLINA, n. sp.

Female, 32 mm. Head bright-crimson. Palpi loose-haired; ochreous-brown, beneath dull purple. Antennæ pale brownish, towards base whitish. Thorax bright crimson; patagia dull purple. Abdomen bright crimson; beneath pale fuscous-ochreous. Legs dull purple; middle and posterior tarsi ochreous; posterior tibiæ with a terminal pair of spurs only. Forewings elongate-triangular, costa straight to near apex, apex round-pointed, termen slightly rounded, strongly oblique; deep reddish-purple without markings, in oblique light showing transverse wavy lustrous lines; cilia reddish-purple. Hindwings with termen rounded; veins 6 and 7 stalked; pale reddish-purple, base and inner margin pale ochreous; cilia reddish-purple.

The crimson body renders this a brilliant and unique species. The genus *Parasa*, Wlk., may be distinguished from *Thosea*, Wlk., by the presence of only a single pair of spurs on the posterior tibiæ, and by the pectinations of antennæ in male not being continued to apex.

Townsville, Queensland, in December; one bred specimen received from Mr. F. P. Dodd.

PARASA ATMODES, n. sp.

Male, 30 mm. Head dark fuscous. Palpi clothed with appressed hairs; fuscous, apices ochreous. Antennæ fuscous. Thorax dark fuscous, with leaden-metallic lustre, a V-shaped ochreous line posteriorly, its apex forwards. Abdomen dark fuscous, with leaden-metallic lustre; upper surface of tuft orange-ochreous. Legs dark fuscous annulated with pale ochreous. Forewings triangular, costa straight to near apex, apex round, termen rounded, scarcely oblique; dark fuscous, with leaden-metallic lustre; a whitish spot on base of dorsum;

a fine dentate whitish line from mid-costa to dorsum at one-fourth, preceded by an incomplete blackish line; an interrupted, crenate, whitish line from three-fourths costa to three-fourths dorsum, immediatelwy followed in disc by three blackish spots edged with pale brownish, the upper two confluent; an ochreous-grey terminal band containing a fine crenulate fuscous sub-terminal line; cilia ochreous-grey, apices at tornus blackish. Hindwings with termen rounded; pale fuscous-brown; cilia whitish, apices towards tornus dark fuscous, on inner margin pale brownish.

In the type one of the forewings has thirteen veins, vein 4 being forked from near base. On the other side the neuration is normal.

Townsville, Queensland, in March; one specimen received from Mr. F. P. Dodd.

PARASA LOZOGRAMMA, n. sp.

Male, 30 mm. Head, palpi, thorax, and abdomen ochreous-whitish. Legs ochreous-whitish; anterior coxæ and femora fuscous. Forewings triangular, costa straight to apex, apex tolerably pointed, termen slightly rounded, slightly oblique; ochreous-whitish, somewhat brownish tinged; a very oblique brownish-fuscous line from costa near apex to dorsum at one-fifth; an inwardly curved line from a point with the preceding on costa to termen above tornus; cilia ochreous-whitish, apices towards tornus fuscous. Hindwings with termen rounded; ochreous-whitish; cilia ochreous-whitish.

In markings this is similar to *Thosea divergens*, Moore, though not identical.

Brisbane, Queensland, in January; one specimen.

CRYPTOPHASA EUCEPHALA, n. sp.

Male and female, 29-38 mm. Head ochreous-yellow; face white or whitish. Palpi white; basal two-thirds of second joint with an anterior ochreous line; distal third of second joint and terminal joint with an anterior dark fuscous line. Antennæ white; in male shortly pectinate (1). Thorax snow white. Abdomen grey; first two segments mixed with reddish-ochreous; sides white; lower surface ochreous with a pair of blackish dots on each segment. Legs ochreous-yellow annulated with blackish. Forewings narrow-elongate, costa slightly arched, apex rounded, hindmargin slightly oblique, slightly rounded; snow white; costal edge ochreous, at extreme base blackish; cilia snow-white. Hindwings grey; towards inner-margin whitish; cilia snow-white.

Townsville, Queensland, in October; a series bred by Mr. F. P. Dodd from larvæ which tunnel the smaller stems of *Grevillea striata*, and probably other proteaceous shrubs. On pupating the enrance is completely blocked by a white plug.

Type in Coll. Walsingham.

Xylorycta rhizophaga, n. sp.

Male and female, 25-33 mm. Head and thorax white. Palpi white, anteriorly suffused with fuscous. Antennæ white, in male laminate, laminations two-thirds, ending in tufts of cilia. Abdomen grey-whitish; two basal segments irrorated with orange scales. Legs whitish; anterior and middle pairs fuscous anteriorly. Forewings narrow-oblong, costa gently arched, apex obtuse; hindmargin straight, rounded beneath, scarcely oblique; snow white; costal edge fuscous towards base; cilia snow white. Hindwings 1½; hindmargin rounded; grey; towards base whitish; cilia white.

Easily distinguished from *X. homoleuca*, Low., which has all the wings narrower, hindmargin of forewings oblique, hindwings whitish, and male antennæ not laminate.

Townsville, Queensland, in November and December; a series bred by Mr. F. P. Dodd.

The larva feeds on *Persoonia falcata*. It forms a spout-like chamber of silk and fragments of bark just on or an inch or two above the surface of the ground, and tunnels the stem for from 6 to 10 inches, the tunnel being nearly wholly underground, and sometimes extending into a root. If the stem is accidentally broken it spins a chimney to the surface of the ground. When about to pupate it shuts off the upper part of the chamber, and forms a new short spout, through which it emerges. The pupa is placed at the bottom of the long tunnel, the moth leaves the pupal shell there, and creeps up the tunnel to the surface.

Type in Coll. Walsingham.

Xylorycta basileia, n. sp.

Male and female, 17-19 mm. Head, purple-fuscous; lower part of face yellow. Palpi purple-fuscous; lower part of second joint yellow anteriorly. Antennæ dark fuscous; ciliations in male very short (one-fifth). Thorax golden-yellow. Abdomen ochreous-fuscous; tuft ochreous. Legs yellowish; anterior and middle pairs fuscous anteriorly. Forewings elongate-oblong; costa arched, in male more strongly; apex round-pointed; hindmargin oblique, rounded beneath; deep shining purple; extreme base and a median band golden-yellow;

median band transverse, biconcave; cilia fuscous. Hindwings scarcely broader than forewings; hindmargin sinuous; grey, towards base ochreous-tinged; cilia pale ochreous, with a suffused greyish median line.

Allied to *X. lætiorella*, Wlk., but readily distinguished by the wholly dark cilia of forewings.

Townsville, Queensland, in October; a series bred by Mr. F. P. Dodd.

Type in Coll. Walsingham.

Brachybelistis, n. g.

Head with appressed scales. Palpi slender, recurved, short, not reaching base of antennæ; terminal joint minute, pointed. Maxillary palpi minute. Tongue obsolete. Antennæ in male simple, moderately ciliated. Thorax not crested. Forewings with vein 2 from three-fourths to five-sixths, 7 and 8 stalked, 7 to termen. Hindwings with 3 and 4 stalked, 6 and 7 connate or stalked.

Differs from *Xylorycta*, Meyr., in the very short palpi, with minute terminal joint. It is certainly a good genus, the known species being closely related and having a peculiar facies.

Brachybelistis neomorpha, Turn.

(*Xylorycta neomorpha*, Turn., Annals Queensland Mus., iv., 13, 1897.)

The hindwings differ in the two sexes. In the male they are dark fuscous, with ochreous-whitish cilia, in the female both hindwings and cilia are grey. The anterior and middle tibiæ and tarsi and posterior tarsi are crimson in the male, pale crimson in the female.

Cryptophaga blackburnii, Low. Tr. Roy. Soc., S.A., 1892, p. 15, appears to be a closely allied species.

Brachybelistis pentachroa, Low.

(*Xylorycta pentachroa*, Low. Trans. Roy. Soc., S.A., 1901, p. 83.)

Male, 21 mm. Head and antennæ blackish; antennal ciliations moderate (1½). Palpi ochreous. Thorax blackish. patagia ochreous. Abdomen blackish, dorsum of third segment ochreous. Legs ochreous, femœa dark fuscous. Forewings elongate, costa very slightly arched, apex round-pointed, termen nearly straight, oblique; ochreous-yellow; a blackish discal dot before middle, confluent with a large blackish blotch, which occupies whole posterior half of wing except costal and

terminal margins; cilia ochreous-yellow. Hindwings rather elongate, termen slightly rounded; pale ochreous yellow; a broad blackish terminal band; cilia pale ochreous-yellow, near tornus blackish.

Female, 30-37 mm. Head whitish, pinkish-tinged. Palpi ochreous. Antennæ whitish. Thorax whitish, pinkish-tinged; two elongate posterior dark grey spots. Abdomen grey; third segment ochreous; apices of segments pale ochreous. Legs ochreous. Forewings elongate, costa moderately arched, apex round-pointed, termen nearly straight, oblique; whitish, pinkish-tinged; with four oval ochreous spots, bordered with blackish scales and surrounded with more or less blackish irroration; first spot in disc at one-third, second obliquely beyond and below first, third and fourth closely approximated, arranged transversely in disc before two-thirds, the latter more elongate; cilia pale grey, apices ochreous-fuscous. Hindwings pale yellowish; a suffused pale grey terminal band; cilia pale grey.

No one would have considered these dissimilar insects to be sexes, but Mr. Dodd, who has bred a series, and in whom I have every confidence, assures me that that is the case. I think this must be identical with the species described by Mr. Lower, although if so he has described a female type as the male.

Townsville, Queensland, in December; three specimens received from Mr. F. P. Dodd.

Lichenaula candescens, Low.

(*Xylorycta candescens*, Lower. Tr. R.S., S.A., 1896, p. 163; *Lichenaula dissimilis*, Turner. Annals Queensland Mus., 1897, iv., p. 18.)

Charters Towers, Townsville, and Brisbane, Queensland.

Lichenaula comparella, Wlk.

(*Œcophora comparella*, Wlk., Tin., 681; *Lichenaula callisema*, Turn., Annals Queensland Mus., iv., p. 19.)

I have examined and identified Walker's type in the British Museum.

I may here remark that the large genera, *Xylorycta* and *Lichenaula*, are in an unsatisfactory position at present, and will need revision. The stalking or separation of veins 6 and 7 of the hindwings is certainly variable in several species.

Lichenaula allocrossa, n. sp.

Male and female, 22-25 mm. Head and palpi clear brown. Antennæ fuscous; in male slightly serrate, with short ciliations

(½). Thorax whitish-grey; anteriorly dark brown. Abdomen grey, mixed with brown on dorsum, tuft of male whitish. Legs fuscous; posterior femora and tibiæ ochreous-whitish. Forewings elongate-oblong, costa slightly arched, apex rectangular, hindmargin straight, not oblique; grey-whitish mixed with dark fuscous scales, which tend to form streaks on veins; an obscure longitudinally elongate brown spot at end of cell; hindmargin clear brown except at anal angle; cilia narrowly white at bases, then broadly brown-fuscous, then pale fuscous mixed with whitish, at anal angle wholly grey-whitish. Hindwings somewhat broader than forewings, hindmargin rounded; ochreous-fuscous-whitish; cilia whitish with a grey line at one-third.

Mount Elliott, near Townsville, Queensland, in September; a series bred by Mr. F. P. Dodd.

Type in Coll. Walsingham.

PLECTOPHILA DISCALIS, Wlk.

(*Acontia discalis*, Wlk., suppl. 786; *Pletophila discalis*, Meyr., Tr. R.S., S.A., 1890, 55; *Lichenaula inscripta*, Turn., Annals Queensland Mus., iv., 21, Trans. Roy. Soc., S.A., 1900, p. 9.)

LICHENAULA CASTANEA, n. sp.

Female, 17 mm. Head white. Palpi long, terminal joint as long as second; whitish, apical portion of terminal joint fuscous. Antennæ fuscous, basal joint white. Thorax whitish (rubbed). Abdomen reddish-ochreous-fuscous, apices of segments and tuft whitish-grey; beneath dark fuscous, irrorated with whitish. Legs whitish. Forewings elongate-oblong, costa moderately arched, apex rounded, hindmargin but little oblique, rounded beneath; whitish irrorated with reddish-brown and purple-brown scales forming very confused markings; the purple-brown scales predominate along inner margin, the reddish-brown tend to form four suffused nearly equi-distant transverse fasciæ. Of these, the last, which is hindmarginal, is the best marked; cilia white, mixed with bright reddish-brown. Hindwings grey; cilia ochreous-whitish, with a fuscous line at one-third, towards anal angle grey.

Not very near any other species.

Birchup, Victoria; one specimen in November.

Type in Coll. Lyell.

LEPTOBELISTIS, n. g.

Head with loosely appressed hairs. Tongue very small and weak. Antennæ in male strongly ciliated. Palpi short, recurved, slender, not reaching vertex; second joint with appressed scales; terminal joint about half second, slender, acute. Thorax smooth. Abdomen slender. Forewings with vein 2 from five-sixths, 3 from angle, 7 and 8 long-stalked, 7 to hindmargin. Hindwings with 3 and 4 separate at base, 6 and 7 stalked to four-fifths of their length.

The long-stalking of veins 6 and 7 of the hindwings and the short palpi, with well-developed, slender, terminal joint, sufficiently characterise this genus.

LEPTOBELISTIS ASEMANTA, n. sp.

Male and female, 12-15 mm. Head white. Palpi white; second joint with a subapical fuscous ring. Antennæ dark fuscous; in female white; ciliations in male 2. Thorax dark fuscous, irrorated with white. Abdomen ochreous-fuscous; tuft whitish. Legs white; anterior and middle pair dark fuscous anteriorly. Forewings rather narrow, costa slightly arched, apex round-pointed, hindmargin straight, oblique; white, sparsely irrorated with dark fuscous; three large fuscous spots on inner margin at base, middle, and anal angle; cilia dark-fuscous mixed with white. Hindwings and cilia pale grey.

Townsville, Queensland, in November; a series bred by Mr. F. P. Dodd.

Type in Coll. Walsingham.

CLERARCHA POLIOCHYTA, n. sp.

Male and female, 20-28 mm. Head, palpi, and thorax white, very sparsely irrorated with dark fuscous. Abdomen grey. Legs white, irrorated, and tarsi annulated with dark fuscous. Forewings elongate-oblong, costa slightly arched at base, thence nearly straight to near apex, apex round-pointed, termen obliquely rounded; pale grey, mixed with white and dark fuscous; a short narrow vertical dark fuscous line from fold in disc at one-third; a dark fuscous discal dot surrounded by white at two-thirds; a sub-terminal series of dark fuscous streaks on veins; a series of minute terminal dark fuscous dots obsolete towards costa; cilia grey, bases and extreme apices white. Hindwings elongate-ovate, termen slightly sinuate; grey; cilia whitish with a grey line at one-third.

Townsville, Queensland, in September; four bred specimens received from Mr. F. P. Dodd.

Type in Coll. Walsingham.

Illidgea æthalodes, n. sp.

Male and female, 22-26 mm. Head, thorax, and palpi dark grey mixed with whitish. Antennæ dark fuscous. Abdomen whitish-grey or grey. Legs white,irrorated and annulated with dark fuscous; posterior pair mostly white. Forewings broad, oblong, costa rather strongly arched at base, thence straight, apex rectangular, hindmargin straight, slightly sinuate, not oblique, rounded beneath, inner margin strongly curved at base; dark grey mixed with whitish, markings black; a strong line from base of costa along basal part of inner margin; a fine transverse streak from costa before middle, not reaching inner margin; this is preceded by two shorter streaks from costa, which are connected in disc with each other and with basal line; an inwardly oblique streak from costa at three-fourths, rather broad on costa, narrowing, and reaching to little beyond middle of disc; a fine erect streak, succeeded by a white shade, from before anal angle, bent slightly outwards in disc, so that it passes well posteriorly to costal streak; some fine blackish lines on posterior veins; a fine blackish hindmarginal line; cilia dark grey mixed with whitish. Hindwings as broad as forewings, hindmargin rounded; grey; in male whitish towards base, in female wholly grey; cilia grey-whitish with a darker line at one-third.

Unlike *I. epigramma*, Meyr., this species appears to be very constant in its markings. From the former species it is best distinguished by the posterior line being broken into two separate streaks.

Townsville, Queensland, in September and October; a series bred by Mr. F. P. Dodd.

Types in Coll. Walsingham.

Uzucha hypoxantha, Low.

(*Uzucha hypoxantha*, Low., Trans. Roy. Soc., S.A., 1894, p. 88. *Gonioma xanthopsis*, Turn., Annals Queensland Mus., iv., p. 28, 1897.)

Veins 6 and 7 of hindwings may be either approximated at base, connate, or short-stalked; vein 7 of forewings either to apex or slightly to the costal side of apex. My genus, *Gonioma*, must, therefore, be quashed.

This species varies in size from 23 to 42 mm.

Procometis stenarga, n. sp.

Male and female, 22-25 mm. Head, thorax, palpi, and antennæ blackish, irrorated with white. Abdomen ochreous-fuscous; in female grey; apices of segments and tuft in male

pale ochreous. Legs white mixed with dark fuscous; posterior pair whitish-ochreous. Forewings elongate, costa moderately arched, apex rounded, hindmargin obliquely rounded; white irrorated with blackish; middle of costa narrowly clear white; two indistinct darker spots in disc at and below middle in posterior part of disc a tendency to longitudinal parallel to veins; cilia dark fuscous, mixed with white. Hindwings ochreous-fuscous; towards base paler, towards apex fuscous; cilia ochreous-fuscous with a darker basal line; in female hindwings and cilia are grey.

Near *P. genialis*, Meyr., which has brighter hindwings and a brownish spot on forewings.

Gisborne, Victoria, in February; two specimens taken by Mr. S. Lyell.

PROCOMETIS DIPLOCENTRA, Meyr.

In Annals Queensland Museum, iv., p. 29, I threw some doubt on the occurrence of this species in Queensland. Since then I have seen specimens from Duaringa which answer to the description with exactness. I am now satisfied that the specimen attributed to it from Tasmania, though closely similar, is not identical.

AGRIOPHARA HORRIDULA, Meyr.

(Trans. Roy. Soc., S.A., 1890, p. 77. *Agriophara leucanthes*, Turn., Annals Queensland Mus., iv., p. 31, 1897.)

I have compared my type with Mr. Meyrick's.

ZYGÆNIDÆ.

MONOSCHALIS MIMETICA, n. sp.

Male and female, 20-27 mm. Head orange. Fillet and antennæ blackish, with a purple lustre. Thorax blackish, with a large orange posterior spot. Abdomen blackish, with five broad orange annulations; basal and apical segments blackish. Legs blackish. Forewings elongate-triangular, costa gently arched, apex round-pointed, termen very oblique, gently rounded; blackish, with pale orange spots; a longitudinal streak in mid-disc near base; an approximately triangular spot below costa beyond middle, succeeded beneath by an oval spot indented posteriorly, and that by a small roundish spot above tornus; a subapical spot indented posteriorly once or twice, sometimes partly divided by fine blackish lines on veins; cilia blackish. Hindwings short, triangular, costa abruptly arched, termen gently rounded; blackish; a large basal pale orange spot divided by a fine blackish line on median vein,

and less distinctly on internal veins; a second roundish spot beneath middle of costa; cilia blackish.

This species closely resembles *Thyrassia subcordata*, Wlk., from India, but vein 10 of forewings is free. Both genera will be found characterised in Hampson's "Moth of India," vol. i., p. 238. Possibly they may eventually be amalgamated. In the present species veins 8 and 9 of forewings are variable, being either separate or short-stalked.

Not only is the shape, pattern, and coloration of the fore and hind wings that of a *Syntomid*, but the neuration of the hindwings is very deceptive at first sight. The distal part of vein 8 is wanting, but the proximal part (costal vein) is well marked. The subcostal vein is weak, and may be overlooked, so that at first it may appear that the costal vein is altogether wanting. More careful examination shows that the resemblance to the neuration of the *Syntomidæ* is merely superficial and misleading.

Townsville, Queensland, in January, February, and March; a series received from Mr. F. P. Dodd, who informs me that the larvæ are short and thick, whitish, with weak hairs, and feed on a species of *Vitis*.

ZEUZERIDÆ.

Xyleutes nephocosma, n. sp.

Male, 50 mm.; female, 62 mm. Head grey; face whitish-grey. Antennæ pale ochreous; in female whitish. Thorax grey; in male with two longitudinally black lines diverging posteriorly and some blackish scales on posterior margin. Abdomen whitish-grey in male; grey in female. Forewings narrow-elongate, costa slightly arched, more strongly in female, apex round-pointed, hindmargin very oblique, rounded beneath; whitish-grey; mottled and blotched with darker grey, which forms three squarish blotches near base, beneath costa at two-fifths, and above inner-margin beyond middle; and an elongate shade before and parallel to upper half of hind margin; a series of dark fuscous dots on costa; a series of short transverse dark fuscous strigulæ from inner-margin, sometimes united by a fine irregular longitudinal line; cilia whitish, barred with fuscous on veins. Hindwings elongate, hindmargin scarcely rounded, sinuate before anal angle; whitish; in female grey; cilia as forewings.

In my male type there is a bar between veins 7 and 8 of hindwings beyond cell (not opposite the cell as in *Zeuzera*). This is absent in the female.

Townsville, Queensland, in November and December; two specimens received from Mr. F. P. Dodd, who bred them from larvæ found in stems of *Melaleuca leucodendron*. He informs me that the specimens are rather small examples.

Xyleutes zophoplecta, n. sp.

Male, 42 mm. Head, thorax, and antennæ dark fuscous. Abdomen dark grey. Forewing narrow-elongate, costa slightly arched, apex rounded, hindmargin very obliquely rounded; dark grey; apical half suffused towards costa with whitish-grey; the whole disc closely strigulated with black, strigulæ coarse towards base, very fine over suffused area; a few whitish-grey scales along lower part of hindmargin; cilia fuscous with a few whitish-scales. Hindwings and cilia dark grey.

Townsville, Queensland, in December; one specimen received from Mr. F. P. Dodd.

TRYPANIDÆ.

Dudgeona actinias, n. sp.

Male and female, 31-43 mm. Head and thorax dark reddish-brown; apices of tegulæ ochreous; thorax with a large bifid posterior crest. Abdomen whitish-ochreous. Legs whitish-ochreous; anterior and middle tibiæ mostly dark reddish-brown. Forewings elongate-oblong, posteriorly dilated, costa slightly arched, apex rounded, hindmargin scarcely oblique, rounded beneath; dark reddish-brown; towards costa, hindmargin, and base of inner-margin paler and interrupted by numerous small ochreous spots; a cluster of five to nine shining snow white rounded spots on inner-marginal part of basal third of disc; a series of four or five similar spots of unequal sizes along hindmargin; preceded by three or four similar spots in central part of hindmarginal area; cilia dark reddish-brown. Hindwings elongate-ovate, hindmargin slightly rounded; pale ochreous, partly suffused with brownish; cilia whitish-ochreous.

This magnificent species appears to agree in structural characters with Hampson's genus *Dudgeona*, of which I was able to examine the type, an Indian species, in the British Museum. It certainly suggests a relationship to the *Tortricina*.

Townsville, Queensland, in December; several specimens received from Mr. F. P. Dodd, who states that the larvæ have the habits of *Xyleutes*. Like that genus, the pupa has to break through a thin covering of bark, and then protrudes while the moth emerges.

XYLORYCTIDÆ.

Pilostibes embroneta, n. sp.

Male and female, 30-46 mm. Head brown-whitish; face white. Palpi white; external surface of second joint brownish. Antennæ white; pectinations in male 1. Thorax pale brown. Abdomen whitish, mixed with reddish-brown. Legs brown-whitish. Forewings elongate-oblong, costa strongly arched, apex acute, hindmargin oblique, sinuate beneath apex; pale brown, with a very few scattered dark fuscous scales; a broad streak from base of costa to beyond middle of disc, toothed above at one-third and beneath at two-thirds, white, edged with dark fuscous, apical third narrow and wholly dark fuscous; cilia grey, with a strongly marked dark fuscous basal line. Hindwings 1½, hindmargin rounded; whitish, slightly brownish-tinged; cilia whitish.

Mareeba, Northern Queensland; two imagos bred in August from larvæ feeding in the stems of a crimson-flowered *Callistemon* growing on the banks of the Barron River.

Cryptophasa psilocrossa, n. sp.

Male, 35 mm. Head whitish-brown; face whitish. Palpi whitish. Antennæ dark fuscous; pectinations 1. Thorax ochreous-brown, with a posterior pale ochreous spot. Abdomen dark fuscous; second segment orange-ochreous; tuft whitish-ochreous. Legs whitish-brown annulated with dark fuscous; posterior pair mostly dark fuscous. Forewings somewhat dilated near base; costa slightly arched, apex round-pointed, hindmargin obliquely rounded; ochreous brown; with five blackish dots in disc; first in disc beyond one-third; second in disc at two-thirds; third before and beneath second; fourth and fifth close together, above and beneath fold, equi-distant from first and third; an interrupted blackish line on lower two-thirds of hindmargin; cilia ochreous-brown. Hindwings much broader than forewings, hindmargin rounded; dark fuscous; a narrow strip denuded of scales from apex along apical half of hindmargin; cilia white.

In general appearance resembles the male of *C. balteata*, Wlk., but the wings are broader and differently shaped. It also differs in the pale spot on thorax, absence of dots on costa of forewings; and partly bare margin and white cilia of hindwings. The female is not yet known.

Brisbane, in October; one specimen bred from *Eucalyptus*.

CRYPTOPHASA HYALINOPA, LOW.

(Trans. Roy. Soc., S.A., 1901, p. 82.)

Male, 31-32 mm. Head and palpi whitish. Antennæ blackish, pectinations 1. Thorax pale pinkish-white. Abdomen blackish; apices of segments whitish; second segment reddish-orange. Legs whitish, anterior pair pinkish, annulated with blackish. Forewings rather narrow, costa nearly straight, apex round-pointed, hindmargin very obliquely rounded; slaty-brown; with five black discal dots; first at one-third of disc and one-third from costa; second before two-thirds of disc and one-third from costa; third before and below second; fourth and fifth closely approximated, above and below fold, about midway from first and third; cilia pale fuscous, with a dark fuscous basal line. Hindwings $1\frac{1}{2}$; hindmargin slightly rounded; blackish; apical two-fifths free from scales and transparent; the line of division sharp, somewhat dentate; cilia white.

Female differs as follows: 65-70 mm. Antennæ white, finely annulated with dark fuscous. Forewings broader, costa moderately arched, hindmargin less oblique; pinkish; cilia with a series of blackish basal dots. Hindwings white, with an inner-marginal hairy patch. Abdomen with apical segments whitish.

Townsville, Queensland, in October; bred abundantly from *Eucalyptus sp.* by Mr. F. P. Dodd.

CRYPTOPHASA SACERDOS, Wlsm., M.S.

Male, 37 mm. Head pale reddish-orange. Palpi white, terminal joint dark fuscous. Antennæ black, pectinations 2, 3. Thorax white, anteriorly faintly suffused with reddish-orange. Abdomen dark fuscous. Legs blackish, with white annulations. Forewings oblong, costa slightly arched at base, thence nearly straight, apex obtuse, hindmargin slightly oblique, rounded; blackish-fuscous, without markings; cilia white, basal one-fourth dark fuscous. Hindwings dark fuscous; cilia fuscous.

Female differs as follows: 50-54 mm. Abdomen dark fuscous, with white annulations, terminal segment white. Forewings clear white, base sometimes suffused with fuscous; a black dot in disc at three-fifths; a row of black dots along apical third of costa and hindmargin; cilia white. Hindwings fuscous; along costa white; some obscure blackish dots on hindmargin; cilia white, towards anal angle greyish.

The sexes are very different.

Brisbane, larvæ tunnelling the stems of *Eucalyptus* (Blood-wood).

Types in Coll. Walsingham.

Cryptophasa eugeniæ, Luc.

(Proc. Roy. Soc., Queensland, 1899, p. 153.)

In the "Annals of the Queensland Museum," No. iv., p. 10 (1897) I wrongly identified this species with *C. pultenaeæ*, Lewin, but now recognise its distinctness. It is closely allied to *C. epadelpha*, Meyr., which, however, always lacks the discal dots on the forewing.

Cryptophasa byssinopis, n. sp.

Male and female, 42-45 mm. Head, thorax, and palpi white. Antennæ in male white; pectinations 4-5; in female dark grey, towards base white. Abdomen white; second segment bright reddish-ochreous above. Legs white; tarsi annulated with blackish; anterior tibiæ blackish anteriorly. Forewings elongate-oblong, costa moderately arched, apex rounded, hind-margin obliquely rounded; vein 2 from near middle of cell; snow white; with three blackish discal dots, first in disc at one-third, second in disc beyond middle, third beneath and posterior to second; a series of minute blackish dots on hind-margin; cilia white. Hindwings white, with minute hind-marginal blackish dots sometimes obsolete; cilia white.

The sexes are closely similar. Nearly allied to *C. eugeniæ*, Luc., from which the male is readily distinguished by the white hindwings; the female is closely similar to that of *eugeniæ*, but the black dots on margin of wings, especially hindwings, are less developed, and sometimes obsolete.

Townsville, Queensland, in September; a series bred by Mr. F. P. Dodd.

Types in Coll. Walsingham.

Cryptophasa panleuca, Low.

(Trans. Roy. Soc., S.A., 1901, p. 83.)

Male and female, 31-44 mm. Head, thorax, and palpi white. Antennæ white in both sexes; pectinations in male 1½. Abdomen white; second segment bright reddish-ochreous above; apices of three succeeding segments narrowly reddish-ochreous above. Legs white; inner aspect of anterior pair spotted with blackish. Forewings elongate-oblong, costa slightly arched, apex rounded, hindmargin obliquely rounded; white; cilia white. Hindwings white; a series of minute blackish dots along hindmargin.

The sexes are closely similar. This species may be at once distinguished from the preceding by the absence of discal dots.

Townsville, Queensland, in September; a series bred by Mr. F. P. Dodd. The larvæ bore the stems of species of *Tristania*.

Thosea penthima, n. sp.

Male, 28 mm. Head, palpi, thorax, and abdomen dull brown. Antennæ whitish, pectinations ochreous-whitish, in male pectinated to apex. Legs dull brown; posterior tibiæ with two pairs of spurs. Forewings triangular, costa straight to near apex, apex obtusely rectangular, termen strongly bowed, slightly oblique; whitish-grey, suffused with brownish, with a few scattered dark fuscous scales, absence of brownish suffusion leaves a pale oblique fascia, its anterior edge much suffused, its posterior edge sharply defined by a fuscous line from costa at five-sixths to dorsum at two-thirds; a minute dark fuscous discal dot in fascia; a pale terminal band from absence of brownish suffusion; cilia brownish-fuscous. Hindwings with termen rounded; veins 6 and 7 stalked; pale brownish; cilia as forewings.

Townsville, Queensland, in April; one specimen received from Mr. F. P. Dodd, who informs me that the larvæ are oval and very broad, covered with numerous tufts of stinging spines, and feed on *Careya australis*.

Elassoptila, n. g.

Head with rounded anterior cone of scales. Palpi very long, porrect, second joint five times breadth of eye, with projecting scales at apex, terminal joint about one-fourth second, obliquely ascending, stout, tolerably acute. Tongue absent. Antennæ in male with long coarse double pectinations continued almost to apex; in female filiform. Posterior tibiæ with two pairs of long spurs. Forewings with 2 from five-sixths, 4 from angle, 5 from shortly above angle, 6 from near middle of cell, 7, 8, 9 stalked. Hindwings with 3 and 4 connate, 5 parallel to 4, 6, and 7 long-stalked.

The peculiar palpi are sufficient to distinguish this genus.

Elassoptila microxutha, n. sp.

Male, 14-16 mm. Head and thorax brown. Palpi brown, apex and internal surface ochreous-whitish. Antennæ dark fuscous. Abdomen fuscous mixed, except at apex, with orange-ochreous. Legs fuscous annulated with ochreous-whitish. Forewings triangular, costa strongly arched, apex rounded, termen rounded, oblique; brown; an obscure fus-

cous erect mark from dorsum before middle; a straight oblique whitish line from costa at two-thirds towards tornus, its lower extremity attenuated and only represented by minute dots on veins; cilia dark brown. Hindwings with termen rounded; fuscous-brown, an elongate orange-ochreous spot in dorsal part of mid-disc; cilia fuscous-brown.

Female, 20 mm. Forewings more elongate. Abdomen wholly ochreous. Color and markings of wings less distinct.

This species has rather the *facies* of a small *Lymantriad*.

Mount Tambourine, Queensland, in December, February, and March. The male found plentifully flying in a rapid zig-zag course within the dense forest a few inches from the ground. I took only one female.

Aboriginal Rock Paintings on the South Para, Barossa Ranges.

By E. C. Stirling, M.D., F.R.S.

Plates III. and IV.

[Read August 5, 1902.]

Like the Australian aborigines themselves, their handiwork, that cannot receive the protecting shelter of a museum, must in the nature of things disappear, and thus it seems desirable to lose no opportunity of preserving a pictorial record of such perishable objects as their rock paintings. With this view, I submit to the notice of the Society a record of a few such drawings found in two rock shelters, on the Yatalunga estate, in the hills to the north-east of Adelaide. Aboriginal drawings of the same general character as those to be mentioned have been described and figured from various localities in South Australia. The Horn Expedition met with several series in the MacDonnell Ranges and their outliers, many of which are reproduced in its report (1); others appear in the report of the Elder Expedition (2); and Mr. Worsnop's book (3) contains a number of them, derived from various sources. A good account of these paintings, with many figures, is contained in the recent comprehensive book of Messrs. Spencer and Gillen (4). Similar drawings from various parts of Australia have been recorded in the scientific publications of the other States, and the journals and reports of many explorers and travellers have frequently contained allusions to their existence.

So far as I am aware, however, the drawings now to be noticed are the only ones that have been reported from the near neighbourhood of Adelaide, though the adjacent ranges supply many shelters or protected rock surfaces such as commend themselves to the natives for their artistic purposes. The Yatalunga drawings must have been known to the early

(1) Report on the work of the Horn Scientific Exploring Expedition, Part IV., Anthropology, 1896.
(2) Trans. Royal Soc., S.A., vol. iv., p. 237.
(3) Prehistoric Arts, Manufactures, Works, Weapons, &c., of the Aborigines of Australia, Adelaide, 1897.
(4) Native Tribes of Central Australia, 1899.

settlers in these parts, for the ruins of a long-habited dwelling-house stand within a few hundred yards of their position, which is easily visible and accessible. But if observed they seem to have been forgotten, for those who, more recently, have lived many years in the locality—even the owners of Yatalunga—had no knowledge of their existence till they were recently brought to notice by Mr. Percy Ifould. This gentleman, in company with two fellow-students of the School of Mines, quite recently discovered the larger of the two shelters in the course of a geological excursion. On a second visit the smaller shelter was noticed by Mr. W. Brooks, of Smithfield.

The shelters are situated about two miles to the north-east of Yatalunga House in a valley in the Barossa Ranges on the right bank of the South Para, close to a sharp bend in the stream. Here the hillside rises steeply from within a few yards of the river bank; a little lower down, the hill-slope springs from the bank itself.

My colleague, Mr. Howchin, informs me that the material of the rock, the unequal weathering of which has produced the shelters, varies from a clay slate (phyllite) to a fine-grained schistose rock. This decomposes to a fine impalpable powder making good soil, as evidenced by the abundant growth of grass which it supports

There are two shelters in which paintings exist. The larger (Plate iii.) is a recess a few yards from, and a few feet above, the normal river bank, and is stated to be beyond the level of the highest flood. This shelter is 15 feet in length, 6 feet high at its mouth, and about the same in depth. On the rather uneven dark surface of the back wall are the drawings numbered 1—9 (Plate iv.). They are all done in red ochre, margined with a narrow band of white material. All but one of these are zoomorphic in character, representing animal objects. Of these fig. 1 is clearly a snake, possibly (from its shape) a death adder, and a lively imagination might conceive it as represented in the act of striking. Fig. 2, from the shape of the head and the "turn up" of the toes, is apparently the figure of a man. I interpret fig. 3 as that of a dog which, notwithstanding its general crudeness, distinctly conveys the idea of active motion. Figs. 4 and 5—the latter indistinct—represent bird tracks, probably those of the emu. Fig. 6 may perhaps be intended for a sleeping lizard, though the limbs are disproportionately long for this animal. For fig. 7 I have no suggestion to offer, unless it be a design for a corrobboree decoration pattern or be one of a class of paintings that will be

noticed in connection with those in the second shelter. Figs. 8 and 9 are clearly intended for birds of different kinds. In the former the even lower contour makes it appear as if the artist had intended to picture the bird as resting upon the water; but the appearance is really due to the cutting off of the lower part of the design by obliteration. There were also pigmentary indications of other drawings in this shelter, but they had become so greatly obliterated as to be indecipherable; and they have, therefore, been omitted from the plate. In the upper part of the back wall some drawings had evidently become obscured by numerous mud nests of wasps and swallows.

About 150 yards lower down the stream, and at a rather higher level above the river, is a considerably smaller shelter, which also contains a few discernible drawings. In this a considerable recent fall of earth from above has partly blocked the entrance, and probably also raised the level of the floor, for it is now impossible to stand upright in the shelter. Moreover, the raising of the floor has brought it within a few inches of the lowest drawings. To have drawn the designs in the position which these now occupy would have almost required the artist to have assumed the prone position.

The drawings in this cave (nos. 10-13), which are shown in the inset in Plate iv., are also done in red ochre; but in these there is no marginal white. Fig. 12 again repeats a bird track, and possibly 13 may also be zoomorphic in origin, but the reproduction, which has unintentionally made the figure rather more symmetrical than the reality, evokes unduly this suggestion.

Figs. 10 and 11 may possibly belong to the class of designs described by Messrs. Spencer and Gillen (1), called *Churinga Ilkinia* by the Arunta, which are regarded as sacred from their association with totems. The former appears like a simple form of two figures represented on plate 131 of the work just referred to. Their meaning was unknown to the writers beyond the fact that they were connected with the honey-ant totem of the Warramunga tribe in the neighbourhood of Barrow Creek. In these the vertical stripe bisects three series of concentric circles.

On digging into the floor of both caves indications were found of former occupancy in the shape of pieces of charred wood, a few fragments of fresh water mussel shells, and a fragment of the jaw of a small rodent animal. On the surface of

(1) Native Tribes of Central Australia, p. 614, &c.

the floor, as well as almost everywhere else around, were the recent remains of dead rabbits.

I have been able to gather no information as to the age of these drawings, or as to the tribe by whom they were executed. The unobliterated figures are, however, still quite distinct. In general style and characters and the colors used the zoomorphic designs are quite similar to those that have been recorded from other parts, the bird tracks being especially of frequent occurrence, but there were no indications here of the stencilled figures of hands that have been so often noticed in many such shelters throughout the country.

In conclusion, I have to thank Mr. John Hogarth for the photograph from which Plate iii. is reproduced; Mr. Tucker for other photographs, which it has not been possible to utilise; and Miss Harwood for reproducing, from my own crude sketches, some of the drawings of Plate iv.

Descriptions of New Genera and Species of Australian Lepidoptera.

By Oswald B. Lower, F.E.S., Lond., &c.

[Read July 1, 1902.]

BOMBYCINA.

HEPIALIDÆ.

Hepialus ombraloma, n. sp.

Male, 50 mm. Head, palpi, thorax, legs and abdomen fuscous, anterior half of abdomen clothed with bright orange-red hairs above. Antennæ ochreous. Forewings elongate-triangular, costa sinuate, posteriorly moderately arched, termen obliquely rounded continuously with inner margin; dark ochreous-fuscous, markings not traceable; cilia dark fuscous. Hindwings with termen rounded; reddish-orange; a dark fuscous band along termen, broad at apex, gradually attenuated to beyond middle, where it terminates; cilia dark fuscous, becoming reddish-orange along inner margin and anal angle. Underside of both wings reddish-orange; forewings with a broad dark fuscous band along termen; hindwings with similar band, but sharply interrupted in middle by ground color.

Port Lincoln, South Australia; one specimen (*Coll. Lyell*).

ARCTIADÆ.

Comarchis epigypsa, n. sp.

Female, 22 mm. Head and thorax snow-white, face ochreous, with a black bar above middle, thorax with a median fuscous spot. Antennæ and palpi fuscous, palpi yellowish externally. Legs and abdomen orange, anterior legs infuscated. Forewings elongate-triangular, termen obliquely rounded; snow-white, markings fuscous; a very short oblique streak at base; a moderate large flattened triangular costal patch, extending from near base to beyond middle, from lower edge of which proceeds a double angulated line to above innermargin at one-third; a moderately large suffused blotch immediately beyond, resting on innermargin and reaching half across wing; a broad irregular patch along termen, constricted towards costa and separated on lower half from preceding patch by a

streak of ground color; an irregular quadrate spot on costa before apex; a smaller spot just before it, from which proceeds an outwardly curved series of spots terminating on upper edge of innermarginal patch; a fine white subterminal line; cilia fuscous, becoming mixed with whitish scales at base. Hindwings orange-yellow; a narrow fuscous apical streak; cilia orange, fuscous-tinged around apex.

Penola, South Australia; one specimen, in November.

BOMBYCIDÆ.

Euproctis euryzona, n. sp.

Male, 22 mm. Head, thorax, palpi, legs and abdomen dark orange fuscous. Antennæ ochreous, pectinations fuscous. Forewings elongate-triangular, termen strongly rounded, oblique; deep ochreous-fuscous minutely irrorated with dull ochreous-whitish scales; costal edge paler ochreous; two moderately thick ochreous-fuscous transverse fasciæ, first before middle, moderately straight; second from two-thirds costa to innermargin to before anal angle, moderately curved outwards on upper half; cilia ochreous-fuscous, terminal half lighter. Hindwings dull orange; paler on basal half; cilia as in forewings.

Henley Beach, South Australia; two specimens, in November.

Bombyx (Cosmotriche) oxygramma, n. sp.

Male, 38 mm. Head and thorax ashy-grey, palpi dark fuscous. Antennæ whitish, pectinations 6, dark fuscous. Abdomen and legs ashy-grey, tarsi ringed with whitish. Forewings elongate-triangular, costa faintly sinuate, termen rounded, somewhat oblique; cinereous-grey; median third somewhat tinged with ochreous; a long round black discal spot in middle; a thick, well-defined, very strongly dentate transverse black fascia, from just before apex to beyond middle of innermargin, continued as a moderate streak along innermargin towards base; veins faintly outlined with ochreous-fuscous; a row of large black spots along termen and base of cilia; interneural spaces with fine black lines, continued to spots along termen; cilia greyish. Hindwings with termen rounded; white; costal edge fuscous; spots along termen and cilia as in forewings.

Related to *mioleuca*, Meyr., and its allies; but very distinct by the curious oblique strongly dentate black fascia and discal dot. It is an easily recognised species.

Broken Hill, New South Wales; one specimen, in May.

DARALA HELIOPA, n. sp.

Female, 40 mm. Head, thorax, palpi, and abdomen yellowish-ochreous. Legs ochreous fuscous. Antennæ whitish-ochreous, pectinations nearly 3. Forewings elongate-triangular, termen rather strongly rounded; yellowish-ochreous, darker on basal two-thirds; a suffused purplish-fuscous moderately thick line, from costa at one-fourth to innermargin at one-fourth, sharply curved inwards on lower two-thirds; a thick, well-defined, hardly waved, purplish-fuscous line from costa at two-thirds to innermargin at two-thirds, gently curved outwards on upper half; a small purplish-fuscous, whitish-centred spot above middle, just beyond first line; a second, larger, in a direct line, considerably beyond; ground color between the two lines suffused with purplish fuscous; a curved row of small fuscous subterminal dots; cilia yellow. Hindwings with termen rounded; color as in forewings; first line absent; discal dots, second line, subterminal line, and cilia as in forewings; discal dots more pronounced beneath.

Derby, Western Australia; two specimens, in October.

I have seen specimens from Mackay, Queensland.

DARALA CALLIXANTHA, n. sp.

Female, 40 mm. Head, palpi, thorax, antennæ, legs, and abdomen bright canary-yellow. Forewings elongate-triangular, termen strongly bowed, oblique; bright canary-yellow, with four faint fuscous transverse lines; first from costa at one-fourth to innermargin at one-fourth, slightly curved outwards; second nearly straight, slightly curved beneath costa, from costa at two-thirds to innermargin at two-thirds; third parallel and similar, from costa at three-fourths to before anal angle; fourth subterminal, parallel to third; a dark fuscous subcostal spot at one-third from base; a second in a direct line, considerably beyond; cilia yellow. Hindwings with termen rounded; color, cilia, and all markings, except first line, as in forewings.

A pretty species, not near any other known to me.

Derby, Western Australia; one specimen, in December.

LIMACODIDÆ.

DORATIPHORA, Westw.

I employ this name for those species possessing the following characters, which are drawn from *vulnerans*, Lewin (*Bombyx V.*, Prodr. Ent., p. 5, t. 4, 1805), which I assume to be the type.

Head densely haired, moderately smooth. Palpi porrect, moderate, densely haired, terminal joint very short, sometimes concealed by hairs of second joint. Antennæ more than half in male, bipectinated to apex, pectinations extremely short on terminal half. In female very shortly dentate throughout. Abdomen and legs densely haired, tibiæ and tarsi haired above. Forewings with vein 1 furcate towards base, 2 from about two-thirds from base, 7 and 8 out of 9; generally 10 out of 9 near base, sometimes considerably before base, sometimes from slightly beyond base of 9. Hindwings with 3 and 4 separate, 6 and 7 stalked or from a point, 8 connected with cell towards base. The variations in structure of forewings are to be found in the same species; the structure of hindwings is more constant, excepting that in two instances 6 and 7 are long stalked.

I have the following species:

Doratiphora vulnerans, Lew.

(*Bombyx vulnerans*, Lewin, Prod. Ent., p. 5, t. 4, 1805; *Doratiphora V.*, Westw., Exot. Moths, p. 181, 1841.)

Adelaide, South Australia; Melbourne, &c., Victoria; Sydney, New South Wales; Brisbane to Cape York, Queensland.

Somewhat variable, but easily recognised. The specimens from Queensland are darker colored.

Doratiphora quadriguttata, Walk.

(*Anapæa quadriguttata*, Walk., Lep. Hep., cxxxii., 474, 1865.)

Adelaide, South Australia, to Brisbane, Queensland.

Varies somewhat; sometimes the 2 upper spots of forewings are obliterated by ground color, more especially in male specimens.

Doratiphora euchrysa, Lower.

(Trans. Roy. Soc., S.A., p. 152, 1896.)

Vein 10 out of 9 considerably before base, 6 and 7 of hindwings short stalked. Palpi rather small.

Northern Queensland.

Doratiphora hemistaura, n. sp.

Female, 38 mm. Head, thorax, palpi, antennæ, legs and abdomen pale yellow, thorax fuscous in middle, palpi moderate, porrect, moderately smooth, terminal joint short, exposed. Forewings elongate, moderate, termen rounded, strongly oblique; 10 from base with 9; pale yellowish; some blackish scales before base in middle; moderate, reddish ochreous, irre-

gular, triangular patch above innermargin before middle, edged with paler, indented strongly on either side; a small black discal mark in middle of wing; a broad outwardly curved obscure transverse ochreous fascia, from three-fourths of costa to anal angle; cilia yellowish, with fuscous median and subterminal lines. Hindwings with veins 6 and 7 short-stalked; pale yellowish-orange; cilia pale yellowish orange.

Nearest *euchrysa*, but very distinct by the reddish patch of forewings.

Mackay, Queensland; one specimen, in November.

Doratiphora brachyopa, Lower.

(P.L.S., N.S.W., p. 10, 1897.)

In the female of this species vein 10 is out of 9 considerably before base; the same peculiarity is observed in *euchrysa*. The male, however, has 9 and 10 starting at the same point, and in one specimen almost separate at base. Palpi short, shortly haired beneath, terminal joint very short, exposed.

Mackay and Cooktown, Queensland.

Doratiphora amphibrota, n. sp.

Male and female, 24-26 mm. Head, thorax, legs, and abdomen deep reddish. Palpi very short, haired beneath, terminal joint minute. Antennæ ochreous, bipectinated to apex, pectinations at greatest length 6, very short on terminal half. Forewings elongate, moderate, termen rounded, oblique; 7 out of 9 near base, 8 and 9 stalked; 10 from just beyond angle of cell, hardly touching 9; deep reddish, darker on basal two-fifths; a narrow slightly outwardly oblique white streak from just beyond one-third of innermargin to three-fourths across wing, edged posteriorly throughout by a broad dull fuscous-whitish band; a similarly colored band along termen; ground color between bands lighter than that on basal two-fifths; cilia greyish-fuscous, with a reddish basal line. Hindwings with termen rounded; 6 and 7 short-stalked; light reddish; cilia light reddish.

Not unlike a small specimen of *Lethocephala bombycoides*, Feld., but neuration is different.

Derby, Western Australia; three specimens, in October.

Doratiphora perixera, n. sp.

Male, 20 mm. Head, palpi, thorax, legs, and abdomen dark fuscous, palpi very short short, terminal joint minute, patagia ochreous-grey. Antennæ reddish-ochreous, bipectinated to apex, pectinations at greatest length 6, terminal half

very short. Forewings elongate, moderate, termen obliquely rounded; 10 out of 9 before base, or from a point with 9; greyish-ochreous; darker on basal third; costal edge pale ochreous; a dark reddish-fuscous mark on innermargin at one-third; a second, similar, obliquely above, more or less joined to preceding; a similarly colored larger spot in middle of disc, at two-thirds from base; cilia greyish-ochreous, with a dull reddish-ochreous basal line. Hindwings with termen rounded; 6 and 7 stalked; pale reddish; darker along inner margin; cilia as in forewings.

Allied to preceding; differs in color and markings.

Derby, Western Australia; two specimens, in October.

Doratiphora (?) liosarca, n. sp.

Male 24 mm. Head, thorax, palpi, antennæ, legs, and abdomen pale fleshy red. Antennæ bipectinated to apex, pectinations at greatest length 6, gradually becoming shorter on terminal half. Forewings elongate, moderate, costa hardly arched, termen obliquely rounded; 8 and 9 out of 7 near base; 10 from beyond angle of cell, not connected with 9; pale fleshy-red, without markings; cilia pale ochreous, with an ochreous basal line. Hindwings with termen rounded; pale ochreous-reddish, cilia as in forewings.

Differs from two preceding species by absence of markings.

The different form of the antennæ from most of the previously described species makes this species rather discordant, but its apparent affinity renders it necessary to place it here. I have what I consider the female, in which the antennæ is also bipectinated to apex, pectinations 2, but it is not in a condition to decide with certainty. Should it prove so, then a new genus will be necessary, as although it agrees in structure fairly well the antennæ would remove it from this genus.

Derby, Western Austrlia; four specimens, in poor condition, in November.

Doratiphora sphenosema, n. sp.

Male, 30 mm. Head, thorax, legs, and abdomen deep mahogany-red, tarsi ringed with ochreous. Palpi deep reddish, internally ochreous. Antennæ reddish, bipectinated to apex, pectinations ochreous, at greatest length 6, terminal half very short. Forewings elongate, moderate, termen obliquely rounded; ochreous reddish; 10 from just beyond angle of cell, not touching 9: a short oblique fuscous streak from inner margin at one-third, reaching one-fourth across wing, edged by its own width of obscure grey; a moderate reddish spot in middle of disc, at two-thirds from base; cilia reddish-grey,

with an ochreous-reddish basal line. Hindwings with termen rounded; light reddish-ochreous, becoming more reddish along innermargin and base; cilia as in forewings, but mixed with dark reddish.

Allied to previous species, differing in color, markings, also neuration; in the latter somewhat approaching *Lethocephala*, Feld.

Cooktown, Queensland; two specimens, in November.

Doratiphora eumela, Lower.

(Trans. Roy. Soc., S.A., p. 153, 1896.)

Vein 7 of forewings not connected with 9; 10 out of 9 well before angle. Hindwings with 6 and 7 stalked or from a point. Palpi very short, terminal joint minute.

The difference in neuration of this and the following species I regard as specific only.

In one specimen the neuration of hindwings is normal; in another 6 and 7 from a point.

Mackay and Townsville (*Dodd*), Queensland.

Doratiphora aspidophora, n. sp.

Male and female, 22-30 mm. Head, palpi, thorax, antennæ, legs, and abdomen deep chocolate, thorax mixed with reddish in middle, palpi very short, terminal joint minute. Forewings elongate, moderate, costa somewhat sinuate in middle, termen obliquely rounded; 7 separate from, but closely approximated to 9 at base; 10 out of 9 well before angle; deep chocolate; a narrow oblique transverse line from costa at three-fourths to inner margin in middle, edged posteriorly by a lighter parallel shade throughout; a moderately large deeper chocolate, somewhat ovoid, blotch below apex, just before termen, anterior edge suffused, posterior edge sharply defined; cilia deep chocolate. Hindwings and cilia deep chocolate; 6 and 7 from a point.

Feeds on *Eucalyptus sp.* Cocoon oviform, smooth, snow-white.

Derby, Western Australia, two specimens, in October.

I have seen specimens from Queensland.

Doratiphora nephrochrysa, n. sp.

Male, 20 mm. Head, thorax, ond abdomen dark greyish-fuscous. Legs dark fuscous, very densely haired, posterior legs ochreous-tinged. Palpi porrected, bright ochreous, moderately smooth, terminal joint short, exposed, distinct. Antennæ ochreous-fuscous, bipectinated to apex, at greatest length 6,

terminal half very short. Abdomen dark fuscous. Forewings elongate, moderate, costa faintly sinuate in middle; 10 from a point with 9; dark fuscous; a narrow ochreous streak along costa; a well-marked irregularly shaped bright orange-ferruginous spot above innermargin at one-third; some ochreous scales along termen; cilia dark fuscous, with ochreous-whitish spots towards base. Hindwings with termen rounded; 6 and 7 from a point; blackish-fuscous; cilia as in forewings.

This species could form the type of a new genus on account of the palpi and neuration, but in the absence of further material I place it in *Doratiphora*.

Mackay, Queensland; one specimen, in poor condition, in November.

Doratiphora (?) ordinata, Butler.

(*Doratiphora ordinata*, Butl., T.E.S., Lond., 388, 1886.)

I hesitate to refer this species to *Doratiphora*, veins 7 and 10 are both separate from 9; in other respects it agrees with the genus. I have only the female.

Townsville and Cooktown, Queensland.

Lethocephala eremospila, n. sp.

Male, 30 mm. Head, thorax, palpi, abdomen, and legs deep mahogany-red, thorax darker in middle, terminal joint of palpi reddish-orange, all tarsi with broad ochreous rings. Antennæ reddish, bipectinated to apex, gradually narrowed on apical portion, at greatest length 6, pectinations ochreous. Forewings elongate, moderate, costa straight, termen obliquely bowed; 7 and 9 free a point or closely appromximated at base; 10 separate, from just beyond angle; deep mahogany-red; a short black strongly outwardly oblique streak on innermargin at one-third only reaching to vein 1; cilia deep mahogany-red, terminal half fuscous, separation obscure. Hindwings with termen round; 6 and 7 stalked; ochreous-reddish, thickly clothed with reddish hairs along innermargin; cilia as in forewings.

Not unlike specimens of the preceding genus, but the antennæ are different, in addition to neuration.

Mackay, Queensland; two specimens, in October.

Lethocephala callidesma, Lower.

(Trans. Roy Soc., S.A., p. 153, 1896.)

I formerly queried the generic location of this species, but I think it rightly referred.

DASYCOMOTA, n. g.

Head and thorax densely haired, moderately smooth. Palpi porrect, second joint triangularly scaled, terminal joint concealed. Antennæ bipectinated to apex, shorter on apical sixth. Forewings with 2 from three-fourths; 7 and 8 out of 9; 10 separate, closely approximated to 9 at base. Hindwings with 6 and 7 stalked.

Closely allied to *Lethocephala*, Feld., differing principally by the antennæ. Perhaps it need not be separated.

Dasycomota pyrrhœa, n. sp.

Male, 30 mm. Head, thorax, palpi, legs, and abdomen dark reddish, thorax lighter anteriorly. Antennæ reddish, bipectinated to apex, shorter on apical sixth, at greatest length 4. Forewings elongate, moderate, costa sinuate, termen strongly rounded in middle, oblique; dark reddish, minutely irrorated with deeper red, deepest on basal third and beyond line; a narrow nearly straight reddish-fuscous line from costa at five-sixths to inner margin at two-thirds, very slightly curved outwards on upper half, edged anteriorly throughout by its own width of grey-whitish; cilia reddish-fuscous; terminal third darker. Hindwings with termen rounded; reddish-fuscous, paler on basal half; cilia as in forewings, but paler towards base.

Easily recognised by the transverse whitish-edged line of forewings.

Cooktown, Queensland; three specimens, in December.

Momopola cosmocalla, n. sp.

Male and female, 38-42 mm. Head and palpi carmine. Thorax fleshy-ochreous, anteriorly and posteriorly carmine-tinged. Antennæ ochreous, pectinations in male at greatest length 6, in female filiform. Abdomen whitish, carmine-tinged. Legs whitish-carmine, joints and tarsal rings of anterior and middle legs black. Forewings elongate, moderate, costa rather strongly arched, termen gently rounded, oblique; 7 and 8 out of 9, 10 out of 9 below 7; fleshy-ochreous, more or less suffused with carmine throughout; costal edge broadly carmine; a narrow inwardly oblique fuscous transverse line, from middle of inner margin towards costa at three-fourths, but not near reaching it, sometimes absent; cilia ochreous-grey, mixed with carmine, tips fuscous. Hindwings with 6 and 7 stalked; pale ochreous-whitish, delicately suffused with pale carmine on terminal half; cilia pale ochreous-whitish, at base partly carmine-tinged.

Duaringa, Queensland; three specimens, received from late Mr. G. Barnard, taken in February.

ANISOBATHRA, n. g.

Head rough-haired. Palpi rather long, moderately porrected, rough scaled, terminal joint short, exposed. Antennæ over one-half, in male bipectinated to apex, apical $\frac{1}{2}$ very short, in female shortly serrate. Posterior tibiæ and tarsi not haired. Forewings with vein 1 furcate, 2 from three-fourths; 8 and 9 out of 7 near base; 10 absent. Hindwings 6 and 7 stalked; 8 connected with cell near base.

Differs from the preceding genera by absence of vein 10, &c.

Anisobathra actinias, n. sp.

Male and female, 22 mm. Head, face, thorax, and palpi whitish, palpi fuscous on sides. Abdomen and legs ochreous-fuscous. Antennæ fuscous, pectinations at greatest length 5, terminal half very short, separation abrupt. Forewings elongate, rather short, costa moderately arched, more strongly in female, termen bowed, oblique; light fuscous, irregularly suffused with whitish; a narrow oblique white streak from middle of inner margin to middle of lower margin of cell; ground color anteriorly darker; a narrow white streak, from costa at two-thirds, thence strongly curved around to meet apex of previous streak; ground color anteriorly darker, towards base whiter; a narrow curved white subterminal streak parallel to termen; ground color between this and former streak deep fuscous on upper third, whitish below; cilia white, with light fuscous median and terminal lines. Hindwings dull reddish; cilia as in forewings.

Mackay, Queensland; two specimens, in December.

NOCTUINA.

CARADRINÆ.

Prometopus malacopis, n. sp.

Male and female, 28-32 mm. Head, thorax, palpi, and antennæ light fuscous, more or less mixed with dull whitish, apical half of second joint of palpi ochreous-whitish, antennæ shortly ciliated, about 1. Abdomen greyish. Legs whitish-fuscous, anterior and middle tibiæ and tarsi somewhat banded with fuscous. Forewings elongate, moderate, costa hardly arched, termen faintly waved, obliquely rounded; fuscous; lines blackish, waved, indistinct, subbasal dentate; first median, and second only indicated on lower half; subterminal shortly excavated above and below middle, followed by a dull ochreous-fuscous shade throughout, which reaches termen; a sharp black line along fold, from base to one-third; a fine black inter-

rupted line along termen; orbicular small, yellowish; reniform moderate, ochreous; cilia fuscous, mixed with blackish in middle, becoming somewhat ochreous at base. Hindwings with termen faintly waved; whitish fuscous, lighter on basal half; a fuscous discal spot; an interrupted fuscous line along termen; cilia whitish.

Closely allied to *melodora*, Lower, but differs by paler forewings and arrangement of lines.

Broken Hill, New South Wales; Parkside and Exeter, South Australia; Birchip and Stawell, Victoria; four specimens, in November.

PROMETOPUS HELIOSEMA, n. sp.

Male, 26 mm. Head, thorax, and antennæ dark fuscous, collar broadly whitish posteriorly, antennæ shortly ciliated 1. Palpi fuscous, second joint whitish, apex fuscous. Abdomen and legs greyish-fuscous, anterior tibiæ and tarsi more or less banded with ochreous. Forewings elongate, moderate, costa hardly arched, termen faintly waved, obliquely rounded; dark fuscous; all lines lost in general ground color; a thick suffused whitish subcostal streak, from base to one-fifth; a short red dash on fold at one-fourth; orbicular moderate, roundish, bright red, finely edged with black; reniform moderate, reddish-ochreous, posteriorly becoming whitish on lower half; subterminal blackish, dentate, faintly indicated; a moderately broad dull reddish-ochreous line along termen; fine fuscous line along termen; cilia ochreous somewhat barred with blackish. Hindwings with termen faintly waved; fuscous whitish, lighter on basal half; a fuscous discal spot; cilia whitish.

This species stands in some collections as *tortisigna*, Walk. (= *costalis*, Feld.)

Broken Hill, New South Wales; Parkside, South Australia; Melbourne and Gisborne, Victoria; several specimens, in November.

PROMETOPUS RHODOCENTRA, n. sp.

Female, 24 mm. Head, thorax, and antennæ dark fuscous Palpi whitish-fuscous. Abdomen and legs grey-whitish, anterior tibiæ and tarsi more or less banded with fuscous. Forewings elongate, moderate, costa hardly arched, termen faintly waved, obliquely rounded; dark fuscous; lines blackish rather thick; subbasal and first and subterminal indistinct; median slightly waved, oblique; second similar, slightly curved to beneath reniform; a more or less well developed rather thick reddish line along fold; orbicular small red, edged with black; reniform roundish, moderate, bright red, edged with black; a

fine fuscous line along termen; cilia light fuscous. Hindwings with termen faintly sinuate below apex; fuscous whitish; cilia whitish with a fuscous median line.

Broken Hill, New South Wales; two specimens, in April.

Caradrina atmoscopa, n. sp.

Male, 26 mm. Head, palpi, thorax, and antennæ dark fuscous, antennæ dentate, ciliations nearly 1, palpi internally ochreous. Legs fuscous-whitish, tibiæ ringed with ochreous. Forewings elongate-triangular; costa gently arched, termen faintly waved, obliquely rounded; dark fuscous; costa spotted with dull ochreous; first line dull whitish, with two long sharp angulations above and below middle; median indistinct; second line dull whitish, dentate throughout, with a long projection outwards above, thence terminating above innermargin before middle, where it reaches a small semi-circular black line; subterminal strongly dentate, obscurely whitish; all veins on space between subterminal and termen sharply outlined with black, one above middle more distinct and continued to middle of reniform spot; a black line along fold, from base to before middle; orbicular small, dull ferruginous, outlined with black; reniform small, whitish, anteriorly edged by a black line; a row of suffused blackish spots along termen, at extremities interneural streaks; cilia dark fuscous, darker on basal half. Hindwings with termen faintly waved; fuscous, darker on terminal half; cilia whitish, with a fuscous subbasal line.

Between *microdes*, Lower, and *microspila*, Lower, differing from both by the neural streaks and other details.

Broken Hill, New South Wales; two specimens, in April.

Caradrina (?) ochroleuca, n. sp.

Male, 40 mm. Head, thorax, palpi, antennæ, and abdomen pale ochreous-whitish, palpi short, more whitish beneath. Antennæ bipectinated to apex, pectinations at greatest length 4, shorter on apical third. thorax and abdomen without crests. Legs whitish. Forewings elongate, moderate, costa almost straight, termen nearly entire, obliquely rounded; pale ochreous; lines ochreous, faintly outlined; first and median oblique, waved, moderately thick; first angulated on fold; second shortly dentate throughout, curved inwards on lower third; orbicular obsolete; reniform faint, fuscous, crescentic; subterminal faintly indicated; cilia pale ochreous, with a darker basal line. Hindwings with termen rounded; prismatic whitish; a faint fuscous discal spot; cilia similar.

Doubtfully referable to *Caradrina*. It recalls some species of *Leucania*, the antennæ of the species are bipectinated to apex, a character which would indicate a distinct genus, but as a similar character occurs in some European species, it seems better, in the absence of further material, to consider it specific only.

Fraser's Range, Western Australia; one specimen, in June.

CARADRINA (?) PELOSTICTA, n. sp.

Female, 28 mm. Head, thorax, palpi, and antennæ ochreous, palpi porrected, second joint more than twice as long as terminal, finely haired beneath. Abdomen and legs white. Forewings elongate, moderate, costa nearly straight, termen gently waved, strongly bowed, oblique; ochreous, mixed with whitish-ochreous and somewhat infuscated; costal and dorsal edges darker; an obscure elongate light fuscous suffusion lying in middle below cell, with a fuscous spot in middle of upper edge; an obscure light fuscous streak, from termen below apex to inner margin at anal angle; an interrupted waved fuscous line along termen; cilia fuscous, with darker fuscous, terminal and subterminal lines. Hindwings with termen faintly waved; white, thinly scaled; a faint fuscous line along termen; cilia white.

This species and the three following will require new genera to receive them, but in the absence of the males I prefer to place them here provisionally.

Broken Hill, New South Wales; one specimen, in February.

CARADRINA (?) LICHENOPHORA, n. sp.

Female, 30 mm. Head and thorax cinereous-grey, face whitish, thorax somewhat crested posteriorly. Antennæ fuscous. Palpi nearly porrect, second joint moderate, terminal joint short, blackish above, whitish beneath. Abdomen and legs grey-whitish, tarsi black, ringed with white. Forewings elongate, moderate, costa gently arched, termen faintly waved, nearly straight on upper half, thence strongly oblique; cinereous-grey; lines black, well defined; subbasal nearly straight, hardly reaching inner margin, followed by a thicker parallel line on its lower half; first line from one-fourth costa to one-fourth inner margin, outwardly oblique on upper two-thirds, thence gently sinuate inwards, edged anteriorly more or less throughout by a fine parallel line, between subbasal and first lines the ground color is sprinkled with lichen-like scales, which form a blotch below middle; median irregular, commencing from just beyond first, continued very obliquely outwards to

inner margin in middle, second from a suffused blackish patch in middle to three-fourths of inner margin, with a long sharp projection in middle and a very short one above innermargin; subterminal obsolete, strongly waved; area beyond second line more or less irrorated with lichen-like scales, becoming blotch-like above anal angle; orbicular and reniform large; cinereous, edged with black; a blackish lunulate line along termen; cilia cinereous fuscous. Hindwings with termen irregularly waved; whitish; median line fuscous, indistinct; second fuscous, tolerably distinct, dentate throughout; a moderately broad fuscous band along termen, upper edge similar and parallel to second line; a fuscous line along termen; cilia whitish.

Distinct by the lichen-like scales on forewings.

Melbourne, Victoria; one specimen, in November.

CARADRINA (?) CALLICHROA, n. sp.

Female, 34 mm. Head and thorax ochreous-fuscous, patagia and thorax posteriorly mixed with white scales. Palpi moderately porrected, ochreous, fuscous above. Antennæ ochreous. Abdomen and legs greyish, abdomen with strong fuscous crests, median largest, tarsi fuscous above, banded with whitish. Forewings elongate, moderate, costa hardly arched, termen waved, straight on upper half, thence strongly oblique, dorsum gently sinuate before anal angle; fuscous, mixed with fine whitish scales, except on median third; lines black, moderately indicated; subbasal twice sinuate, not reaching dorsum; first from one-fourth costa to one-fourth innermargin, waved throughout and curved inwards; median shade thick, oblique, rich chocolate-brown, limited by median line, which ends on innermargin at two-thirds; second strongly crenulate, curved outwards and tending to be continued along veins, from costa just beyond edge of median shade to inner margin close beyond termination of median line; the white scales form a more or less whitish fascia between last two lines, constricted on lower half; in the upper half is a curved streak of fuscous, indicating edge of reniform; subterminal fuscous, edged posteriorly by a parallel whitish line; a waved dark fuscous line along termen; cilia fuscous, with a waved whitish basal line. Hindwings with termen waved; whitish-fuscous; a moderately large lunular fuscous discal spot; second line moderate, dentate distinct, indented below middle; a broad suffused fuscous band along termen; cilia white, with a fuscous subbasal line.

A richly colored species.

Melbourne, Victoria; one specimen, in November.

Caradrina (?) melanops, n. sp.

Female, 30 mm. Head, thorax, and palpi blackish, sprinkled with a few white scales. Antennæ fuscous. Abdomen and legs fuscous-whitish, abdomen with a large blackish crest on median segment. Forewings elongate, moderately dilated posteriorly, termen faintly waved, rounded, oblique; black,; markings rather obscure; black; subbasal not traceable, first from one-fourth costa to one-third innermargin, waved, curved inwards in middle; median obliterated; second from two-thirds costa to before anal angle; first and second joined by a narrow blackish bar below middle; orbicular grey-whitish, round, large, ringed with black; reniform similar, edged anteriorly by a black line; subterminal waved; a fine blackish line along termen; cilia black, with a fuscous tooth of scales at anal angle. Hindwings with termen irregularly waved; snow-white, with a faint fuscous curved discal spot; a broad blackish band along upper half of termen; cilia snow-white, with a blackish median line, more pronounced on upper half.

Blackwood and Parkside, South Australia; two specimens in April and November.

GEOMETRINA.

HYDRIOMENIADÆ.

Xanthorrhoe rhodacris, n. sp.

Female, 22 mm. Head, palpi, antennæ, thorax, and abdomen reddish-ferruginous, abdominal segments narrowly white. Legs fuscous-whitish. Forewings elongate-triangular, termen faintly waved, bowed, oblique; reddish-ferruginous; two or three reddish-fuscous transverse lines between median band and base; median band broad; dark reddish-fuscous; anterior edge moderately straight, waved, from one-third costa to one-third innermargin; posterior edge with a bidentate projection in middle, from two-third costa to beyond middle of innermargin, finely edged on upper half by a dull whitish line; subterminal line waved, distinct, white; a waved interrupted blackish line along termen; cilia reddish-fuscous, darker on basal half, barred with fuscous. Hindwings with termen gently waved, rounded; greyish, tinged with reddish; lines indistinct, except on innermargin; subterminal, and line along termen as in forewings; cilia as in forewings. Underside of both wings with a large reddish apical patch, and subterminal line more or less reproduced.

In the absence of the male the correct generic position of

this species cannot be assured, but its evident relationship to *hyperythra*, Lower, suggest it being rightly referred.

Penola, South Australia; one specimen, in November.

MONOCTENIADÆ.

Nearcha anemodes, n. sp.

Female, 30 mm. Head, thorax, antennæ, and abdomen pale fleshy-ochreous, face and palpi dark fuscous, palpi snow-white beneath, abdomen whitish beneath. Legs grey-whitish, anterior pair somewhat infuscated. Forewings elongate-triangular, costa straight, termen gently bowed, oblique; pale fleshy-ochreous; a moderate fuscous discal ring below costa in middle; a row of elongate black spots along termen; cilia fleshy-ochreous. Hindwings with termen rounded; color along termen and cilia as in forewings; base of wing somewhat paler; a dark fuscous discal dot.

Very different in appearance to the other described species by the absence of all markings except discal spot.

Derby, Western Australia; one specimen, in November. I have seen a second.

Œnone xenopis, n. sp.

Male and female, 26-30 mm. Head, palpi, antennæ, and thorax dark fuscous, palpi with projecting hairs, thorax somewhat crested. Abdomen ochreous. Legs fuscous, posterior pair mixed with whitish. Forewings elongate-triangular, costa gently arched, termen faintly waved, gently bowed, oblique; dark fuscous; lines black, tolerably distinct; first from one-fourth costa to one-third innermargin, straight on upper half, sinuate inwards on lower half; median obscure, from costa before middle to before middle of innermargin; second from costa at two-thirds to innermargin before anal angle, gently and evenly curved outwards on upper half, sinuate on lower half; a moderate round black centred ochreous discal spot on median shade; a second, much larger, ovoid, similarly colored, at posterior extremity of cell, both spots faintly edged with black; an interrupted black line along termen; cilia fuscous, with median and subterminal blackish lines. Hindwings with termen rounded, waved; greyish-fuscous, lighter on basal half; median and second lines fuscous, faintly indicated, becoming sharply defined on innermargin; line along termen as in forewings; cilia greyish, with two fuscous lines.

An early and interesting type, very unlike the other described species, in appearance recalling species of *Noctuina*.

Broken Hill, New South Wales; three specimens, in April and May. I have seen specimens from Victoria.

ONYCHODES (?) RHODOSCOPA, n. sp.

Female, 50 mm. Head ochreous, face whitish. Antennæ whitish, pectinations ochreous. Thorax cinereous, anteriorly ochreous. Legs and abdomen whitish, faintly ochreous-tinged, two anterior segments of abdomen orange. Forewings elongate-triangular, termen waved, hardly bowed, apex somewhat produced; pale cinereous-grey; costal edge with fine white streaks; three moderate, obscure, fuscous spots, first before middle; third at three-fourths, and second midway between first and third; from first and third proceed a faint fuscous waved line to one-sixth and four-fifths innermargin respectively, more prominent on veins, indicating limiting lines of median band; from second proceeds a moderate, faint, fuscous median shade; cilia whitish, with elongate fuscous interneural streaks at base. Hindwings with termen faintly waved; whitish, faintly pinkish tinged on median area; median shade and second line as in forewings; costal spots absent; a dull purplish-fuscous band around termen, more prominent on upper half; cilia whitish. Underside of wings beneath with costa pale whitish-ochreous, strigulated with fuscous; posterior area somewhat pinkish tinged; median and second line faintly indicated; dorsal third whitish.

Doubtfully referable to *Onychodes*, more probably referable to *Bombycina*. The pectinated antennæ are noticeable.

Derby, Western Australia; one specimen, in October.

GEOMETRIDÆ.

TIMANDRA MALACOPIS, n. sp.

Male, 25 mm. Head, thorax, palpi, legs, and abdomen dull fleshy-ochreous, face ochreous. Antennæ whitish, pectinations ochreous, at greatest length 6. Forewings elongate-triangular, costa nearly straight, termen somewhat prominent in middle, faintly sinuate on upper half, obliquely bowed on lower half; pale fleshy-ochreous; a fine fuscous dot above innermargin at one-fourth; a second, similar, just above, and indications of a third on costa at one-fourth; a fuscous discal dot; a nearly straight narrow ochreous line, edged anteriorly by its own width of fuscous, from costa at three-fourths, where it is slightly curved outwards, thence proceeding obliquely to inner margin at two-thirds; a more or less indicated row of small fuscous spots beyond and parallel to streak; an obscure ochreous-whitish line along termen; cilia fleshy-ochreous. Hindwings with termen sharply angulated in middle; 3 and 4 stalked; 6 and 7 stalked; color, cilia, and markings as in forewings, but discal dot absent.

Nearest *aventiaria*, Gn., but differs in color, different form of line, and especially by the termen of forewings being only slightly prominent in middle.

Derby, Western Australia; one specimen, in October.

EMMILTIS ACHROA, n. sp.

Male, 16-18 mm. Head, palpi, thorax, antennæ, legs, and abdomen dark fuscous, antennal ciliations 2, abdomen with whitish-ochreous segmental rings. Forewings elongate-triangular, termen rounded, oblique; dull whitish, strongly irrorated with fuscous, so as to appear dark fuscous; a fine waved blackish line, from costa at one-third to innermargin at one-third; slightly sinuate above innermargin; a blackish discal spot at posterior extremity of cell; median shade moderately thick, bent outwards to touch discal spot; a fine dentate black line, commencing from a black spot on costa, just before three-fourths to inner margin before anal angle, edged posteriorly by its own width of dull whitish; area of wing beyond darker fuscous subterminal whitish, hardly traceable, a fine black terminal line, somewhat interrupted; interruptions filled in with whitish scales; cilia fuscous, mixed with some whitish scales. Hindwings with termen rounded; color as in forewings, but somewhat reddish-tinged; markings and cilia as in forewings, but first line absent.

Recalls species of *Leptomeris*, but the absence of apical spurs on posterior tibiæ remove it from that genus.

Hobart, Tasmania; three specimens, taken in November.

EUCHLORIS PARAPHYLLA, n. sp.

Male, 20-24 mm. Head and thorax pale green. Antennæ white, fillet pinkish, pectinations 5, inner series pinkish tinged. Palpi pinkish. Abdomen pale green, sides and beneath white. Legs crimson tinged, anterior coxæ green, posterior legs whitish, tibiæ thickened. Forewings elongate-triangular, termen nearly straight, oblique; pale green, somewhat tinged with bluish; a narrow yellowish costal streak, leaving extreme costal edge crimson throughout; cilia green. Hindwings with termen rounded; color and cilia as in forewings.

Apparently nearest *asemanta*, Meyr.

Derby, Western Australia; two specimens, in November.

SELIDOSEMIDÆ.

DIASTICTIS RETINODES, n. sp.

Female, 30-32 mm. Head, thorax, palpi, antennæ, and legs light ochreous. Abdomen greyish-ochreous. Forewings elon-

gate-triangular, costa arched towards base, termen sharply angulated on vein 4, sinuate on upper half, nearly straight beneath; pale ochreous, minutely and sparsely irrorated with fuscous scales; 10 out of 11, hardly touching 9 below 8; 12 free; indications of a moderate, slightly outwards curved line, from one-third costa to one-third innermargin; a well-defined waved fuscous line, from costa at five-sixths to two-thirds innermargin, suffusedly edged anteriorly with fuscous, caused by accumulation of scales; a fuscous dot midway between the two lines; a row of fuscous dots along termen; cilia ochreous. Hindwings with termen waved, shortly produced in middle; color, second line and discal dot as in forewings; cilia as in forewings.

Parkside, South Australia; two specimens, in July.

Diastictis pycnochroa, n. sp.

Female, 30 mm. Head, palpi, antennæ, and thorax deep fuscous purplish, palpi greyish beneath at base. Legs greyish. Abdomen greyish, somewhat purplish-tinged. Forewings elongate-triangular, costa arched towards base, termen sharply angulated on vein 4, sinuate on upper half, nearly straight beneath; 10 out 11 considerably below 8; 12 free; deep purplish-fuscous; a transverse row of small dark fuscous, posteriorly whitish edged spots, from costa at three-fourths to inner margin at three-fourths; indications of a similar row of dots along termen; cilia deep purplish-fuscous. Hindwings with termen irregularly waved; whitish, suffusedly irrorated with dull purplish-fuscous, darker on terminal half; line of dots as in forewing faintly outlined; cilia dark purplish-fuscous.

Parkside, South Australia; one specimen, in November.

PAUROCOMA, n. g.

Face with flattened projecting horny frontal prominence, more pronounced in female. Palpi moderate, porrected, rough scaled, terminal joint moderate. Thorax without crest. Posterior tibiæ somewhat dilated. Antennæ in male subdental, ciliations one-half. Forewings without fovea; 7 and 8 out of 9; 10 out of 11, anastomosing with it for a short distance, thence bent down to touch 9; 12 free. Hindwings with 3 and 4 separate; 5 absent; 6 and 7 somewhat approximated at base; 8 free.

Allied to *Amelora*, Meyr., but differs by the antennæ frontal prominence and neuration of forewings.

Paurocoma molybdina, n. sp.

Male and female, 24-26 mm. Head, palpi, antennæ, and thorax ashy-grey, antennal ciliations one-half, face with flat

horny frontal projection. Abdomen and legs greyish, abdomen with a lateral row of fuscous dots. Forewings elongate-triangular, termen waved throughout; rounded, oblique; grey-whitish, minutely irrorated with blackish, so as to appear greyish-fuscous; lines blackish, sometimes well developed; first from one-third costa, very strongly twice sinuate outwards, thence returning to innermargin at one-third; second from five-sixths costa to two-thirds inner margin, strongly dentate throughout, sinuate above and below middle, leaving a bidentate projection in middle; a black discal dot midway the two lines; a waved black line along termen; cilia grey-whitish, with a fuscous median line. Hindwings with termen gently waved, rounded; greyish, faintly irrorated with light fuscous beyond second line; first line and discal dot absent; second line, line along termen, and cilia as in forewings, but second line sometimes absent.

Not unlike some species of *Taxeotis* (*Monocteniadæ*). The female is more obscure than male; and the second line of both wings is better developed beneath, and in fresh specimens is sometimes faintly edged with whitish posteriorly.

Broken Hill, New South Wales; three specimens, in April.

THALAINODES, n. g.

Face with broad flat horny projecting plate. Tongue developed. Palpi short, porrected, rough-scaled, terminal joint short. Antennæ in male bipectinated to apex. Thorax without crests, densely hairy beneath. Femore smooth, posterior tibiæ slightly dilated. Forewings in male with fovea; 10 out of 9, 11 anastomosing or connected with 12, sometimes with 10 also. Hindwings normal.

Intermediate in form between *Amelora*, Meyr., and *Thalaina*, Walk., but apparently most related to the latter, from which it differs by the horny projection of face and bipectinated antennæ.

Thalainodes tetraclada, Lower.

(*Amelora tetraclada*, Lower, P.L.S., N.S.W., p. 406, 1900.)

Thalainodes paronycha, Lower.

(*Amelora paronycha*, Lower, *l.c.*, p. 407, 1900.)

Having recently obtained male specimens, I find that my conjecture, that this species would possibly prove to be the female of the previous species, was unwarranted. The antennal pectinations are 4; the other details are precisely similar to the female.

THALAINODES ALLOCHROA, n. sp.

Female, 40 mm. Head and thorax greyish-lilac. Palpi white. Antennæ ochreous. Abdomen and legs greyish-ochreous. Forewings elongate-triangular, costa slightly sinuate in middle, termen bowed, oblique; greyish-lilac, without markings; a fine white costal streak, from beyond base to two-thirds; cilia greyish-lilac. Hindwings with termen hardly waved, faintly prominent in middle; 3 and 4 from a point, 6 and 7 from a point; white, thinly scaled; a moderately broad fuscous band along termen, more pronounced below apex and above anal angle; cilia white.

Allied to the previous species, but widely distinct by the absence of markings and color of forewings. It is an uncommon-looking insect.

Broken Hill, New South Wales; one specimen, in April, at light.

LOPHOSTICHA, n. g.

Face slightly prominent. Palpi moderate, ascending, rough scaled, terminal joint very short. Antennæ in male bipectinated, the extreme apex almost simple. Thorax roughened, hardly crested, densely hairy beneath. Posterior tibiæ not dilated. Forewings in male without fovea, surface with transverse rows of erect tufts of scales; 10 connected with 9, 11 and 12 free. Hindwings normal.

Closely allied to the following genus and *Stibaroma*, Meyr., different from both by the curious raised tufts of scales on forewings.

LOPHOSTICHA PSORALLODES, n. sp.

Male and female, 34-36 mm. Head, palpi, and thorax dark fuscous. Antennæ ochreous, pectinations 3. Legs dark fuscous, anterior and middle pair banded with white, posterior pair whitish. Forewings elongate-triangular, termen faintly waved; dark fuscous, more or less strigulated throughout with fine waved blackish marks, and with transverse rows of raised tufts of blackish scales; lines obscure, black; first from one-sixth costa to one-fifth innermargin, gently curved; median only traceable on middle; second from about two-thirds costa to two-thirds inner margin, rather strongly curved outwards on upper half, and with an indentation in middle; in the female the first line is preceded by a large patch of bright ochreous scales, and the second line is followed by a similar broad patch; the raised tufts in the ochreous patch are dark ochreous; veins in both sexes more or less outlined with blackish; a waved black line along termen; cilia whitish, with

a median fuscous line, and blackish points at extremities of veins. Hindwings white; a suffused light fuscous band along termen, preceded by second line, which is as in forewings. line along termen and cilia as in forewings.

The yellowish-ochreous patches on forewings of female are curious and distinct.

Birchip, Victoria; two specimens received from Mr. D. Goudie, taken in April.

AMPHICROSSA, n. g.

Face slightly prominent. Palpi moderate, ascending, rough scaled, terminal joint short. Antennæ in male bipectinated to apex. Thorax with erect bifid anterior and posterior crests, densely hairy beneath. Posterior tibiæ hardly dilated. Forewings in male without fovea; 10 connected with 9, thence anastomosing with 11; 12 free. Hindwings normal.

Allied to *Stibaroma*, Meyr., and the preceding genus, differing from both by the strongly crested thorax and neuration of forewings.

Referring to *Stibaroma*, it may be mentioned that in a specimen of *melanotoxa*, Meyr., vein 10 does *not* touch 9; the same peculiarity is noticeable in a specimen of *trigramma*, so that allowance should be made for this when determining those species. The genus is formed to receive the following.

Amphicrossa hemadelpha, Lower.

(*Stibaroma hemadelpha*, Lower, P.L.S., N.S.W., p. 265, 1897.)

Broken Hill, New South Wales; two specimens, in April and June.

PYRALIDINA.

CRAMBIDÆ.

Talis macroura, n. sp.

Male, 28 mm. Head, palpi, antennæ, and thorax light ochreous-fuscous, palpi more than twice as long as head. Abdomen and legs ochreous, posterior and middle pair fuscous tinged. Forewings elongate, moderately dilated posteriorly; costa gently arched, apex somewhat acute, termen sinuate, rather strongly oblique; yellow-ochreous, finely infuscated; a moderately narrow central longitudinal whitish streak, from base to termen, attenuated at extremities, but becoming more sudden on posterior third, edged above throughout with a fine fuscous line, more prominent in middle; a row of suffused fuscous dots along termen; cilia ochreous, with fuscous subbasal and subterminal lines. Hindwings and cilia pale yellow.

Nearest *acontophora*, Meyr., but differs by yellow hindwings. Penola, South Australia; one specimen, in April.

PYRAUSTIDÆ.

Metallarcha, Goudii, n. sp.

Female, 20 mm. Head, palpi, thorax, antennæ, and abdomen blackish-fuscous, abdomen with orange segmental band, patagia yellow. Forewings elongate, moderately dilated posteriorly, termen hardly rounded, oblique; blackish fuscous, with bright-yellow markings; a large elongate dorsal blotch, occupying lower third of wings; a flattened elongate spot on upper edge of dorsal patch, at one-fourth from base; a second, roundish, about middle; a third, cuneiform, at about two-thirds; a well-defined streak of yellowish-orange immediately before termen throughout; cilia blackish, becoming darker on basal half. Hindwings with termen rounded; bright orange, an elongate blackish streak along anterior half of costa, emitting a blackish tooth near posterior extremity, representing discal dot; a moderately broad black band along termen throughout, broadest at costa and becoming gradually attenuated towards extremity, and with a tooth below apex; line before termen and cilia as in forewings.

Allied to *diplochrysa*, Meyr., but differs chiefly by the absence of the white basal line in cilia, and presence of orange line before termen. I have named the species after Mr. D. Goudie, for whom I am indebted for the type.

Birchip, Victoria; two specimens, taken in January.

TORTRICINA.

TORTRICIDÆ.

Capua pentazona, Lower.

(Tr. Roy. Soc., S.A., xxv., p. 75, 1901.)

The locality was omitted in the original description. It should be Hobart, Tasmania.

Capua acrodesma, n. sp.

Male, 10 mm. Head, palpi, antennæ, thorax, and abdomen dark fuscous, palpi greyish beneath, antennæ faintly annulated with whitish. Legs fuscous, posterior pair lighter, tarsi with whitish rings. Forewings elongate, moderate, costa moderately arched, termen oblique; dull greyish-fuscous; markings dark fuscous, mixed with a few ferruginous scales, costal fold narrow; costa marked with moderate sized spots throughout;

some scales between base and median patch, not forming definite markings; median patch narrow, oblique, from before middle of costa to beyond middle of innermargin; a small triangular spot on costa immediately beyond; a moderate, elongate spot on costa beyond, and two similar, but smaller beyond previous spot; last 3 spots sometimes somewhat confluent on costa; from first of these 3 spots proceeds a fine line to anal angle, where it becomes much broader; a fine black line along upper two-thirds of termen; cilia greyish-fuscous. Hindwings with termen gently sinuate beneath apex; fuscous, lighter towards base; cilia fuscous, with greyish subbasal line.

Near *intractana*, Walk.

Broken Hill, New South Wales; two specimens, in October.

Capua epiloma, n. sp.

Male, 14 mm. Head, palpi, antennæ, and thorax dark reddish-fuscous, palpi whitish internally and at base. Abdomen fuscous. Legs fuscous-whitish. Forewings elongate, moderate, costa strongly arched before middle, sinuate beyond; termen nearly straight; reddish-ferruginous, obscurely strigulated with darker; costal edge obscurely dark fuscous; a well-marked elongate ochreous-whitish streak on costa in sinuation beyond middle; cilia fuscous. Hindwings light fuscous, obscurely spotted with darker; cilia fuscous-whitish, with a darker fuscous subbasal line.

Bathurst, New South Wales; one specimen, in November.

Dichelia scotinopa, n. sp.

Male, 18 mm. Head, palpi, and thorax purplish-fuscous. Antennæ and legs greyish-ochreous, anterior legs fuscous. Abdomen fuscous. Forewings elongate, moderate, costa arched, termen oblique, faintly sinuate below apex; ochreous; markings dull purplish fuscous; a very large postmedian blotch, anterior edge very oblique, from one-fourth innermargin to costa beyond middle, with a more or less prominent projection in middle; costa finely spotted between base and blotch; a short streak along innermargin from base to blotch; posterior edge of blotch from just before apex to anal angle, strongly and evenly curved inwards; cilia ochreous, with a few fine fuscous scales. Hindwings with termen evenly rounded; grey-whitish, finely and evenly spotted throughout with fuscous; cilia greyish.

Stawell, Victoria; one specimen, in April.

DICHELIA PLACOXANTHA, Lower.

(*Anisogona placoxantha*, Lower, T.R.S., S.A., p. 160, 1896.)

Having received further specimens of this species, I consider it referable to *Dichelia*.

TORTRIX ANEMARCHA, n. sp.

Female, 20 mm. Head and thorax fuscous. Palpi and antennæ whitish-grey. Anterior and middle legs light fuscous, posterior pair whitish. Abdomen whitish. Forewings elongate, moderate, costa moderately arched, termen nearly straight; grey-whitish, densely irrorated and strigulated throughout with deep purplish-fuscous, almost obscuring ground color; cilia whitish-grey, with a fuscous-purplish line near base, prominent on upper half. Hindwings with apex rounded; grey-whitish, spotted with light fuscous; cilia grey-whitish.

New South Wales (probably near Sydney); one specimen, in June.

TINEINA.

XYLORYCTIDÆ.

CRYPTOPHAGA ISONEURA, n. sp.

Male, 24 mm. Head ochreous, face ochreous-whitish. Palpi ochreous-whitish, terminal joint short, half of second. Antennæ fuscous, pectinations 2. Thorax dull ochreous-whitish, anteriorly leaden-fuscous, patagia leaden-fuscous, mixed with white. Legs ochreous-whitish, posterior pair fuscous-tinged. Forewings elongate, moderate, costa gently arched, termen obliquely rounded, 2 from five-sixths; 7 to termen; ochreous-whitish, irregularly suffused with rather thick streaks of smoky fuscous, especially along costa and towards termen; all veins more or less outlined with black; a moderately large quadrate ferruginous spot at posterior extremity of cell; some ferruginous scales just below base of vein 2; a moderate ferruginous band along termen to apical fifth of costa, obliterating lines along veins; a sharp black line along termen; cilia dark fuscous. Hindwings with termen rounded; 3 and 4 from a point; 6 and 7 approximated at base; black; basal and innermarginal areas greyish, strongly haired; ferruginous band and line along termen as in forewings; cilia greyish, with black scales on basal half.

Victoria (without further record); one specimen, bred from *Casuarina, sp.*, in November.

CRYPTOPHAGA HYALINOPA, Lower.

(Trans. Roy. Soc., S.A., p. 82, 1901.)

Female, 66 mm. Head, thorax, palpi, antennæ, legs, and abdomen as in male. Forewings as in male, but color clear fleshy-ochreous throughout; markings as in male. Hindwings pale ochreous, with a tuft of blackish hairs on innermargin above anal angle; cilia pale ochreous.

The sexes of this species are very dissimilar in the hindwings, the male having the terminal half hyaline and the basal half black.

Cooktown, Queensland; one specimen.

XYLORYCTA PARTHENISTIS, n. sp.

Female, 32 mm. Head and palpi white, faintly ochreous-tinged. Thorax white, very faintly ochreous-tinged anteriorly. Abdomen greyish-ochreous, segmental margins dull reddish. Antennæ and legs white. Forewings elongate, moderate, costa gently arched, termen rounded, oblique, 7 to termen; shining snow-white; a fine pale ochreous line along costa from base to apex, somewhat dilated posteriorly; cilia snow-white. Hindwings wth termen rounded, 3 and 4 from a point, 6 and 7 from a point; shining snow-white; cilia shining snow-white.

Differs from the similarly colored white species by the snow-white hindwings. It is most related to *homoleuca*, Lower, and *chionoptera*, Lower, differing from the former by the hindwings and ochreous costal streak, and the latter by the hindwings and whitish, not orange, head.

XYLORYCTA STEREODESMA, n. sp.

Female, 30 mm. Head orange, hairs somewhat erect. Palpi and antennæ fuscous, basal half of second joint externally ochreous, wholly ochreous internally. Thorax dark fuscous, anteriorly broadly white. Abdomen ochreous. Legs fuscous, posterior pair ochreous. Forewings elongate, moderate, costa gently arched, termen oblique, hardly rounded, silvery-white; 7 to termen; 2 moderately thick longitudinal black streaks, first from middle of base to apex; second along innermargin from near base to anal angle; cilia shining white, on streaks blackish. Hindwings with termen rounded; fuscous, becoming ochreous at base; 3 and 4 short stalked; cilia pale ochreous.

Probably nearest *synaula*, Meyr. It has the facies of the second section of the *Gelechiadæ*, but the termen of hindwings,

which in most of that group is sinuate beneath apex, is not at all prominent.

Perth, Western Australia; one specimen received from Mr. S. Angel, taken in November.

Xylorycta amphileuca, n. sp.

Male, 30 mm. Head, thorax, palpi, and antennæ grey-whitish, terminal joint of palpi fuscous beneath, patagia shining snow-white, antennal ciliations nearly 1. Legs fuscous-whitish, posterior pair slightly ochreous tinged. Abdomen light fuscous, segmental margins dull silvery, two anterior segments dull orange. Forewings elongate, moderate, termen slightly rounded; 2 from three-fourths; 5 nearer 4 than to 6; shining snow-white; a fine fuscous streak along costa from base to middle, thence continued to apex as an obscure ochreous-fuscous streak; cilia shining snow-white. Hindwings with 6 and 7 connate, 3 and 4 very short stalked; greyish-fuscous; cilia snow-white, pale ochreous at base, with light fuscous subbasal line.

Nearest *orectis*, Meyr., but differs from that and the allied species by the absence of orange on head and fuscous hindwings.

Derby, Western Australia; one specimen, in October.

Xylorycta tetrazona, Lower.

(Trans. Roy. Soc., S.A., p. 84, 1901.)

I have received a specimen of this species from Messrs. S. and F. Angel, taken at Norwood, South Australia, in which the ground color of forewings is yellow. In the type, which came from Stawell, Victoria, they are white.

TRICHLOMA, n. g.

Head smooth, tongue moderately developed. Antennæ moderate, in male filiform, simple, basal joint moderate, without pecten. Labial palpi moderately long, recurved, second joint hardly reaching base of antennæ, moderately smooth, with closely appressed scales; terminal joint nearly as long (shorter in female), as second. Thorax smooth. Abdomen moderate, anal segment beneath somewhat horny. Posterior tibiæ moderately rough-haired. Forewings with vein 1 furcate towards base, 2 from two-thirds, 3 from angle, 7 and 8 stalked, 7 to termen, just below apex, 11 from near middle. Hindwings over 1, oblong-ovate, costa moderately haired, termen faintly sinuate in middle; a large tuft of raised hairs beneath, on innermargin near base, not reaching above vein 2, but more or less continued to base of wing; 3 and 4 short stalked, 5 parallel to

4; 6 and 7 from a point, in female widely remote at origin, 8 connected with cell towards base.

Allied to *Hypertricha*, Meyr., but differing by the longer terminal joint of palpi, presence of veins 7 and 8 of forewings, and especially by the large tuft of tufts of hair beneath hindwings. In *Hypertricha* the hair appears along the costa only, and vein 7 is absent.

TRICHLOMA ASBOLOPHORA, n. sp.

Male, and female, 20-45 mm. Head, thorax, palpi, and antennæ dark fuscous, face, palpi, and base of antennæ externally whitish. Legs whitish, somewhat infuscated. Abdomen greyish-fuscous. Forewings elongate-oblong, costa gently arched, termen gently bowed; dark fuscous, mixed with whitish scales, more or less streaked with short black streaks, especially in middle; veins towards termen more or less outlined with black; extreme costal edge whitish throughout; a short, somewhat obscure, whitish mark below middle, at two-thirds from base, posteriorly edged by its own width of black; an interrupted black line along termen; cilia fuscous, with black spots at extremities of veins. Hindwings with termen faintly sinuate in middle; dark ochreous-fuscous; cilia greyish-ochreous. Tuft of hairs beneath ochreous-fuscous.

Recalls species of *Xyloryeta*, especially *epigramma*, Meyr. The three specimens before me present some curious variations in the neural structure; in the one wing of a male vein 6 of the forewing becomes furcate near termen, causing it to appear extremely long-stalked, vein 2 of the same specimen is divided in middle, thus forming a small cell, then continued as a normal vein to termen. The other wing is normal; in one female vein 5 of the forewing is absent in one wing only (coincident with 4). The generic characters given are, however, sufficiently distinct to separate it from *Hypertricha*, as I have examined many specimens of that genus, and they present no variation.

Birchip, Victoria; three specimens, bred in November by Mr. D. Goudie, who informs me that the species feed on *Casuarina* ("Bull Oak"), tunnel into the straight branches, and form a silky covering over the aperture.

COMOSCOTOPA, n. g.

Head with appressed hairs. Antennæ moderate in male, filiform, with long ciliations (3), without pecten. Labial palpi moderate, curved, smooth scaled, terminal joint, shorter than second. Thorax smooth. Abdomen moderate. Forewings

with vein 1 furcate towards base, 2 from near angle, 3 and 4 stalked, 7 and 8 stalked, 7 to apex, 11 from middle. Hindwing slightly over 1, ovate-oblong, more or less clothed with fine hairs towards base, 3 and 4 moderately stalked, 5 somewhat remote from 4, 6 and 7 stalked.

Closely allied to *Phylomycta*, Meyr., but differs in the strongly ciliated antennæ; it forms a transitional link between that genus and *Agriophara*, Ros.

Comoscotopa leucopelta, n. sp.

Male, 14 mm. Head, palpi, thorax, and legs dull whitish, face whitish, palpi fuscous, internally, posterior legs infuscated, antennæ fuscous, spotted with white, ciliations 3, abdomen blackish fuscous. Forewings elongate, moderate, costa gently arched, termen obliquely rounded; blackish-fuscous, extreme costal edge whitish, more pronounced in middle; a large somewhat ovoid whitish basal patch, extending from base to one-third, but not reaching dorsum; some faint whitish scales forming two obscure parallel curved series; cilia blackish fuscous, with some white scales. Hindwings with termen rounded; blackish; cilia blackish-fuscous, with a darker basal line.

Not unlike *Phylomicta maligna*, Meyr., but hindwings are nearly black.

Mount Gambier, South Australia; one specimen, in November.

ŒCOPHORIDÆ.

Eomystis triselena, n. sp.

Male, 14 mm. Head and thorax reddish-fuscous, posterior edge of thorax silvery-white, patagia silvery-white. Palpi ochreous, ringed with reddish-fuscous. Antennæ reddish, spotted with white. Legs ochreous-whitish, anterior pair banded above with reddish-fuscous. Abdomen ochreous. Forewings elongate, moderate, costa gently arched, apex somewhat pointed, termen nearly straight, oblique; yellowish-ochreous, suffusedly streaked throughout with purplish fuscous, more reddish towards termen; costa narrowly yellowish throughout, obliquely strigulated with fine purplish lines; a fuscous dot at base of costa; 3 silvery-white, reddish-edged spots; first moderate, in disc before before middle; second similar, obliquely below and beyond; third elongate, moderate, larger transverse, at two-thirds from base, but not nearly reaching margins; a transverse row of small silvery-white, reddish-edged spots before termen, one above middle larger; a reddish purple line

along termen; cilia yellowish, at base orange-tinted. Hindwings grey-whitish; cilia whitish, yellowish on basal half.

Closely allied to *asteropa*, Lower, but differs especially in shape of forewing and color of hindwings besides other details.

Cooktown and Townsville, Queensland; four specimens, in November.

EULECHRIA LEUCOPIS, n. sp.

Male, 25 mm. Head, thorax, palpi, antennæ, and legs white. Abdomen ochreous-fuscous, densely clothed with whitish, leaving segmental margins prominent. Forewings elongate, rather broad, costa gently arched, termen obliquely rounded; white, faintly ochreous tinged; cilia white. Hindwings with 3 and 4 from a point; pale whitish-ochreous; cilia pale whitish-ochreous.

Differs from the other similarly colored species by the pale whitish-ochreous hindwings.

Broken Hill, New South Wales; three specimens, in November.

EULECHRIA LEPTOMERA, Lower.

(Proc. Linn. Soc., N.S.W., p. 412, 1900.)

In addition to the characters given, the antennal ciliations are 1, and veins 3 and 4 of hindwings are widely remote, equidistant with 5.

Mr. G. Lyell, jun., has bred the species from *Eucalyptus, sp.*

TRACHYNTIS TETRASPORA, Lower.

(*Philobota* (?) *tetraspora*, Lower, Proc. Linn. Soc., N.S.W., p. 413, 1900.)

Having received further specimens, including the male, I am able to place this species in its correct genus.

PHILOBOTA TRIMERIS, n. sp.

Male, 18 mm. Head orange, palpi yellowish (imperfect). Legs fuscous, anterior and middle tibiæ yellowish, anterior legs orange-yellow. Thorax and abdomen blackish. Forewings elongate, moderate, rather narrow, costa gently arched, termen oblique, hardly rounded; yellow, markings dark fuscous; a moderate rather thick streak along costa from base to three-fourths, attenuated at extremities and leaving extreme costal edge yellowish in middle; a similar streak along inner margin from base to near anal angle; an oblique streak from costa before apex direct to posterior extremity of last-mentioned streak, somewhat constricted below middle; cilia fuscous-yellowish, with a dark fuscous basal line. Hindwings bright

orange, upper half of wing dark fuscous; the fuscous color extends as a thick streak along termen towards anal angle; cilia fuscous, around anal angle yellowish.

Betweenl *auriceps*, Butl., *chrysanthes*, Turn., differing from both by orange hindwings. A similar peculiarity is noticeable in Western Australian *Cæsyra crocinastis*, Meyr.

Port Victor, South Australia; one specimen received from Messrs. S. and F. Angel, taken in March.

ATHEROPLA SCIOXANTHA, n. sp.

Male, 15 mm. Head orange-yellow. Palpi ochreous, second joint beneath fuscous. Thorax, antennæ, and abdomen dark fuscous, antennæ annulated with ochreous-white, anal tuft ochreous. Forewings elongate, moderate, costa gently arched, termen obliquely rounded; pale yellow; markings fuscous; a moderate, thick streak along costa from base to middle, sometimes continued to apex; a well-marked spot on lower edge of streak at one-third; a short suffused streak from base along inner margin, curved up so as to almost touch last-mentioned spot; a moderate spot at posterior extremity of cell, beneath which is a fuscous suffusion extending to anal angle, and there meeting a thick fuscous shade along termen; cilia yellow, with 2 or 3 fuscous teeth at base, becoming wholly fuscous at anal angle. Hindwings pale ochreous; cilia dark fuscous.

Differs from the other species by the dark thorax, yellow hindwings, and cilia.

Stawell and Birchip, Victoria; two specimens, in November.

MIMOBRACHYOMA, n. g.

Head smooth, antennæ thickened, dentate, very shortly ciliated ($\frac{1}{4}$), basal joint moderate, without pecten, or with one or two hair scales. Palpi smooth, moderate, second joint hardly reaching base of antennæ, terminal joint shorter than second, recurved. Thorax smooth. Abdomen rather dilated. Posterior tibiæ clothed with long fine hairs above. Forewings with vein 7 to apex, 2 and 3 stalked, from angle. Hindwings with 3 and 4 from a point, almost stalked in one specimen, cilia one-third.

Allied to *Sphyrelata*, Meyr., differing principally by the stalking of veins 2 and 3 of forewings. The genus is formed for the reception of *eusema*, Lower (Proc. Linn. Soc., N.S.W., p. 413, 1900); an insect much resembling *Sphyrelata* (?) *ochrophæa*, Meyr. Mr. Meyrick, in describing that species, surmised that probably a new genus would be required to receive it, and should *eusema* prove to be a geographical form of *ochro-*

phœa no confusion need arise, as the genus, which is necessary, will stand for that species. I have several specimens before me in perfect condition; one has a fugitive pecten, so that too much stress should not be laid upon that character.

MIMOBRACHYOMA EUSEMA, Lower.

(*Ecophora eusema*, Lower, P. Lin. Soc., N.S.W., p. 413, 1900.)

OCYSTOLA TEPHRODES, n. sp.

Male, 16 mm. Head whitish. Thorax, palpi, and antennæ fuscous, palpi internally white, terminal joint two-thirds of second, antennal ciliations 5. Legs fuscous-whitish, posterior pair whitish. Abdomen greyish-fuscous. Forewings elongate, rather narrow, costa gently arched, apex acute, termen very oblique; white, thickly irrorated with fuscous-grey, so as to appear ashy-grey-whitish, more pronounced on dorsal half; a narrow fuscous line from costa near base, to costa again at one-third; a moderate, thick black streak along fold, from base to anal angle, extremities pointed; a fine longitudinal line above posterior two-thirds of first streak, and continued slightly beyond its extremity; some dark fuscous scales along apical fourth of costa and termen throughout; cilia whitish; mixed with some fine blackish scales. Hindwings rather broadly-lanceolate; 3 and 4 somewhat remote; pale fuscous; cilia greyish-ochreous.

Stawell, Victoria; one specimen, in November.

OCYSTOLA MICROPHANES, n. sp.

Male, 15 mm. Head, thorax, and antennæ white, posterior two-thirds of antennæ fuscous-tinged, ciliations 5, patagia fuscous, palpi broken. Legs fuscous-whitish. Abdomen greyish-ochreous. Forewings elongate, rather narrow, costa gently arched, apex pointed, termen oblique; snow-white, markings black; an irregular streak of scales along fold, from base to just before middle; a narrower and more clearly defined streak immediately above, commencing at about posterior extremity of first streak, and terminating before termen, somewhat dot-like at posterior extremity; a fine line of suffused blackish scales along termen and apical fourth of costa; cilia white, terminal fourth blackish, except at anal angle. Hindwings elongate-lanceolate; 3 and 4 remote; pale fuscous; cilia greyish-ochreous.

Allied to the preceding, but separated by the white forewings, dark patagia, and other details.

Stawell, Victoria; one specimen, in November.

GUESTIA ADELPHODES, Lower.

(*Eulechria adelphodes*, Lower, Trans. Roy. Soc., S.A., p. 178, 1893.)

The stalking of veins 2 and 3 of forewings and other characters of *Guestia* agree so well with this species that I remove it from *Eulechria*.

Mr. G. Lyell has sent me specimens from Gisborne, Victoria, taken in April.

ARDOZYGA, n. g.

Head smooth, side tufts moderate, loosely appressed. Antennæ serrate, evenly ciliated, nearly 1, without pecten. Palpi moderate, second joint not reaching base of antennæ, anteriorly with appressed scales, terminal joint shorter than second. Thorax smooth. Posterior tibiæ with long fine hairs. Forewings moderate, elongate, 7 and 8 stalked, 7 to costa, 2 and 3 fused to a point at base, from lower angle of cell; 3 and 4 sometimes connate. Hindwings nearly 1, 3 and 4 connate or very short-stalked; cilia two-thirds.

This genus is formed to receive the two following species. It differs from *Guestia*, Meyr., by the absence of pecten and veins 2 and 3 not rising on a curved stalk. From *Acompsia*, Hb., by the absence of pecten and fusing of veins 2 and 3 of forewings.

ARDOZYGA TETRALYCHNA, n. sp.

Male, 16 mm. Head, palpi, thorax, and antennæ dark fuscous, palpi internally whitish, apex of joint ochreous. Forewings elongate, moderate, costa gently arched, termen rather strongly oblique; dark fuscous, with some scattered darker fuscous dots, not forming definite markings; a small, well-defined orange red basal spot; a similar spot on inner margin just beyond base; a row of more or less connected suffused blackish spots along termen and apical fourth of costa; cilia greyish, with fuscous subbasal and subterminal lines. Hindwings light fuscous-grey; cilia grey-whitish, with two faint fuscous lines. Although an obscure-looking insect, it may be at once recognised by the orange basal spots, which, though small, are conspicuous.

Stawell, Victoria; two specimens, in November. I have seen a specimen from Birchip, Victoria.

ARDOZYGA THERMOPLACA, n. sp.

Male, 16 mm. Head, thorax, antennæ, abdomen, and legs dark fuscous, face somewhat ochreous, antennæ without pecten, ciliations 1, anal tuft ochreous, posterior legs mixed with

ochreous. Palpi ochreous, terminal joint shorter than second. Forewings elongate, moderate, costa gently arched, termen gently rounded, oblique; dark fuscous; a well-defined orange spot near base; a small white spot beyond and below; an irregular somewhat inwardly curved transverse series of three white spots, hardly forming a fascia, from costa at about one-third, reaching to fold before middle; a moderately large round white spot in middle at two-thirds from base, containing two fine black dots; some white scales along termen; a row of suffused alternate black and yellow spots on costa, commencing at transverse series of white spots, continued along costa to costal cilia, thence continued along termen to anal angle, less defined along termen; cilia yellow, more or less mixed and chequered with blackish. Hindwings yellow, basal and costal areas broadly blackish; cilia yellowish-ochreous.

Allied to the preceding, but easily separated by the bicolored hindwings.

Stawell, Victoria; three specimens, in November.

Saropla paracyla, Lower.

(*Plutella paracyla*, Lower, P.L.S., N.S.W., p. 24, 1897.)

I refer this species to *Saropla*, Meyr. I was inclined to form a new genus on the strength of the peculiarity of veins 2 and 3 of forewings, which in some specimens are short-stalked; in other from a point, and often separate; but these perplexing varieties preclude this. It will be necessary to widen the characters of that genus as above to receive it. The terminal joint of the palpi is erect.

Pleurota lomographa, n. sp.

Male. 15 mm. Head and palpi orange, head with a median transverse fuscous streak, second joint of palpi fuscous below. Thorax, antennæ, legs and abdomen blackish, patagia orange. Forewings elongate, moderate, costa gently arched, termen straight, very oblique; bright orange-yellow; a short blackish spot on costa at base; a moderately broad blackish streak along inner margin, from base to five-sixths, cilia orange, terminal half fuscous. Hindwings blackish-fuscous; cilia fuscous. Underside of both wings blackish.

Nearest *chlorochyta*, Meyr., but differs in color of hindwings and single streak along inner margin.

Goolwa, South Australia; one specimen, in November.

Pedois anthracias, n. sp.

Female, 20 mm. Head, palpi, and thorax blackish, anterior legs fleshy-pink, tarsi banded with fuscous, median and posterior legs whitish. Abdomen greyish-fuscous. Forewings elongate, moderate, costa strongly arched, termen obliquely rounded; 6 to apex; blackish; all veins obscurely outlined with black; extreme costal edge fleshy-ochreous; cilia greyish-fuscous, basal half fleshy-fuscous, mixed with some black scales. Hindwings greyish, faintly fuscous-tinged; cilia greyish, with a fuscous basal line.

Stawell, Victoria; two specimens, in November.

TINEIDÆ.

Iphierga pycnozona, n. sp.

Male, 14 mm. Head and palpi orange-yellow, palpi strongly tufted. Antennæ greyish. Thorax dark fuscous, patagia greyish. Abdomen greyish-ochreous. Legs greyish, anterior pair fuscous, anterior tibiæ fuscous, banded with greyish. Forewings elongate, costa gently arched, termen obliquely rounded; 4 absent; 9 and 10 stalked; pale ochreous, with blackish markings; four moderately straight transverse, irregularly edged fasciæ; first subbasal; second from one-fourth costa to one-fourth inner margin, sometimes interrupted below middle, and not quite reaching inner margin; third from costa before three-fourths to inner margin at two-fifths, with a short obtuse angulation in middle; fourth subterminal, from just before apex to above anal angle; a small spot on costa between third and fourth fasciæ; cilia pale ochreous. Hindwings and cilia pale ochreous.

Allied to *stasiodes*, Meyr., but apart from the difference in neuration it may be separated by the subterminal fascia. The peculiarity in neuration is specific only.

Mackay, Queensland; two specimens in November.

Iphierga melichrysa, n. sp.

Male, 12 mm. Head and palpi orange-yellow, palpi strongly tufted. Thorax and abdomen dark fuscous, patagia fuscous, antennæ greyish-fuscous. Legs fuscous, posterior coxæ ochreous. Forewings elongate, moderate, costa gently arched, termen obliquely rounded; 4 absent; ochreous, with black markings; a narrow basal fascia, outer edge straight; three narrow, moderately straight, irregularly-edged transverse fasciæ; first from one-fourth of costa to one-fourth inner mar-

gin, widely interrupted in middle; second from two-thirds costa to two-thirds inner margin, with an acute projection above middle, sometimes interrupted above and below this; a fine dot on costa beyond; third thick, from costa before apex to anal angle, parallel to termen, and with one or two projections on posterior edge; cilia pale ochreous. Hindwings light fuscous; cilia ochreous-fuscous.

Also allied to *stasiodes*, Meyr., but separated by the basal patch, third fascia, and darker hindwings.

Birchip, Victoria; two specimens received from Mr. D. Goudie, taken in November.

Descriptions of New Australian Geometrina, &c.

By Oswald B. Lower, F.E.S., Lond., &c.

[Read September 2, 1902.]

GEOMETRINA.

HYDRIOMENIADÆ.

Hydriomena actinipha, n. sp.

Female, 24 mm. Head, palpi, antennæ, thorax, and legs fuscous-whitish thorax with a faint fuscous anterior band. Abdomen greyish-ochreous. Forewings elongate-triangular, termen waved, obliquely rounded; ochreous-whitish, markings fuscous, well defined, anterior edge of basal patch gently curved, and finely edged posteriorly by a narrorw streak of whitish throughout, from one-fifth costa to one-fourth inner margin; a fine transverse line of fuscous in middle of patch; median band broad on upper half, finely edged on either side with streak of white, anterior edge from one-third costa to beyond one-third inner margin, strongly indented below middle and with a short projection below costa, posterior edge from beyond two-thirds of costa to two-thirds inner margin, with a strong acute projection in middle; ground color between basal patch and median band and subterminal line sometimes wholly pale ochreous; a black discal dot in middle of median band; subterminal waved, irregular, whitish, anteriorly edged with fuscous; a sharply defined oblique white streak from apex to subterminal below costa; a fine waved black line along termen; cilia whitish, barred with fuscous. Hindwings with termen waved; grey-whitish; median patch faintly indicated in fuscous; subterminal and line along termen as in forewings; cilia as in forewings.

Nearest *cryeropa*, Meyr.

Broken Hill, New South Wales; two specimens, in March.

STERRHIDÆ.

Eois stenozona, n. sp.

Female, 24 mm. Head, palpi, antennæ, and thorax whitish, face blackish, collar light ferruginous. Legs ochreous-whitish. Abdomen grey-whitish. Forewings elongate-trian-

gular, termen oblique, nearly straight; whitish, minutely irrorated with fuscous; all lines except subterminal absent; subterminal strongly waved throughout, black, from costa at five-sixths to inner margin before anal angle, somewhat curved inwards above middle; a row of small fuscous dots along termen; cilia whitish. Hindwings with termen rounded; color, line, dots along termen, and cilia as in forewings; a faint fuscous discal dot.

Recognised by the absence of anterior lines.

Broken Hill, New South Wales; one specimen, in September.

Eois oenopus, n. sp.

Male and female, 12-14 mm. Head, palpi, antennæ, thorax, and abdomen dull whitish-ochreous tinged with greenish, face fuscous, antennal ciliations nearly 1½. Legs whitish-ochreous, posterior tibia in male with tuft of long purplish and whitish hairs. Forewings elongate-triangular, termen obliquely rounded; pale ochreous-whitish, somewhat greenish tinged; lines pale fuscous, waved; first nearly straight; median thicker, somewhat angulated above middle; second nearly straight, subterminal and submarginal obscure; a fine black discal dot above middle resting on posterior edge of median line; cilia ochreous-white. Hindwings with termen rounded; 6 and 7 stalked; color and markings as in forewings, but discal dot placed midway between first and median lines.

A distinct species, the male being recognised by the purplish tuft of hairs of hind tibiæ.

Cooktown, Queensland; four specimens in November.

Eois polygramma, n. sp.

Female, 12 mm. Head, antennæ, thorax, and abdomen white, face and palpi fuscous. Legs fuscous, posterior pair whitish. Forewings elongate-triangular, termen not waved, obliquely rounded; white, with ochreous markings; a narrow streak along costa from close to base to apex; lines strongly waved, well defined; first indented below middle; a fine black discal dot above middle just anterior to median line; median, second, and subterminal, similar and equidistant, and with faint double projection in middle; submarginal narrow; an interrupted fuscous line along termen; cilia greyish-ochreous. Hindwings with termen hardly rounded; 6 and 7 stalked; absent; line along termen and cilia as in forewings. Underside color, lines, and discal dot as in forewings, but first line of all wings pearly-white without markings.

A neatly marked species; a peculiarity is the absence of all markings of underside of wings.

Cooktown, Queensland; one specimen, in November.

LEPTOMERIS TETRASTICHA, n. sp.

Male, 24 mm. Head, antennæ, thorax, and abdomen dull whitish, antennal ciliations 1. Palpi dark fuscous. Legs whitish (posterior pair broken). Forewings elongate-triangular, termen obliquely rounded, hardly waved; white; lines slender, fuscous; first and median faintly developed; a fuscous discal dot in middle; second, subterminal, and submarginal strongly waved, dot-like, parallel and equidistant; a row of black dots along termen; cilia fuscous, with a paler line at base. Hindwings with termen rounded; 6 and 7 stalked; color, lines, discal dot and dots along termen as in forewings; cilia as in forewings.

A curious species, characterised by the arrarngement of the three posterior lines.

Derby, Western Australia; one specimen, in November.

PYLARGE EREBOSPILA, n. sp.

Male, 20 mm. Head, palpi, antennæ, thorax, and legs dull ochreous, palpi long, infuscated on sides. Abdomen dull whitish. Forewings elongate-triangular, termen faintly waved, somewhat prominent in middle; dull ochreous; all lines obsolete; costa with irregularly scattered fuscous dots on posterior two-thirds; markings fuscous; a spot in disc at one-third from base; a second, larger, in middle of wings; indications of a transverse row of small dots, indicating submarginal line; two spots before termen on upper portion of wing; a row of small spots along termen; cilia dull ochreous, paler at base. Hindwings with termen as in forewings; 6 and 7 from a point; color, first discal dot and submarginal dots as in forewings, but the latter more pronounced, especially on lower half; dots along termen and cilia as in forewings.

A peculiar-looking insect not unlike some species of *Noctuina*.

Cooktown, Queensland; one specimen, in November.

SELIDOSEMIDÆ.

SMYRIODES APHRONESA, n. sp.

Male and female, 38-42 mm. Head, palpi, antennæ, and thorax ashy-grey, antennal pectinations 4. Legs ashy-grey, posterior pair grey-whitish. Abdomen greyish. Forewings

elongate-triangular, costa gently arched ,termen obliquely rounded, somewhat waved; cinereous-fuscous mixed with whitish posteriorly; lines blackish; first from one-fourth costa to one-fourth inner margin, angulated above and below middle; second from four-fifths costa to three-fourths inner margin, with a long fine projection outwards and a faint angulation immediately above inner margin; median shade rather narrow, distinct, blackish, similar in shape to previous line, subterminal nearly straight, whitish, obscure; all veins more or less outlined with blackish, more pronounced towards termen; 2 short blackish streaks beforer termen above middle and two similar below; a fine black line along termen; cilia cinereous-fuscous, with black points at extremities of veins. Hindwings with termen waved on upper half, more strongly in male; whitish, irrorated with fine blackish scales; a moderately broad blackish band along termen, narrowed towards anal angle; a fuscous discal dot; a black line along termen; cilia whitish, with blackish points at extremities of veins.

Nearest *heterochaës*, Lower, but differs by the different-shaped lines and especially the shorter antennal pectinations. The male has the lines more obscure.

Birchip, Victoria; one specimen, in April.

TORTRICINA.

Cacæcia ophiodesma, n. sp.

Male, 30 mm. Head and thorax dark ochreous. Palpi, antennæ and, legs ochreous, palpi long, fuscous-tinged above. Antennæ strongly ciliated. Abdomen greyish. Forewings elongate, moderate, costa moderately arched on basal half, termen nearly straight, slightly oblique, costal fold inconspicuous; pale ochreous, with fuscous markings; a small spot on fold at one-sixth from base; a thick, strongly outwardly oblique fuscous fascia, from costa before middle to inner margin at two-thirds, indented in middle on anterior edge, and with an evenly curved sinuation on upper half posteriorly; a moderate cuneiform spot on costa at about five-sixths; some scattered dots towards termen; cilia pale ochreous. Hindwings with termen faintly sinuate beneath apex; 6 and 7 stalked; pale ochreous, greyish towards base, spotted with pale fuscous, more pronounced beneath; cilia pale ochreous.

Not near any other described Australian species; the stalking of veins 6 and 7 and inconspicuous fold of forewings are specific only.

Sheffield, Tasmania; one specimen, in November. (Coll. *Lyell.*)

Dichelia diphtheroides, n. sp.

Male, 12 mm. Head and thorax reddish-ochreous. Palpi and antennæ greyish-ochreous. Abdomen blackish above, whitish beneath Legs whitish-ochreous, posterior and middle pair infuscated Forewings elongate, moderate, costa gently arched on basal half, termen nearly straight, oblique; reddish-ochreous, crossed by numerous irregular narrow transverse fuscous lines, most prominest on posterior half, one from just before middle of costa to beyond middle of inner margin, and another similar from just before three-fourths of costa to anal angle, both streaky gently curved outwards; a narrow fuscous streak from apex to termen towards anal angle; costa shortly spotted throughout with fuscous, from which spots most of the streaks commence; cilia reddish-ochreous, basal half fuscous. Hindwings fuscous, indistinctly spotted with darker; cilia light fuscous.

Birchip, Victorira; one specimen, in April.

Tortrix asthenopis, n. sp.

Male, 16 mm. Head, palpi, thorax, and antennæ dull fuscous-reddish. Abdomen dark fuscous, anal tuft ochreous. Legs fuscous-whitish, posterior pair whitish, coxæ infuscated. Forewings elongate, moderate, costa rather strongly arched, termen hardly rounded, oblique; dull reddish-fuscous; costal edge narrowly fuscous throughout; a moderate dull white supra-median streak, dilated on posterior half, from base to apex, edged obscurely above throughout with a narrow streak of fuscous, and edged below from middle to posterior extremity by a similar streak, thickest on posterior half; a moderate thick irregular dull whitish longitudinal streak from base in middle to anal angle, slightly curved up in middle and edged above throughout with a moderate dull fuscous streak, thickest on posterior half; cilia dull reddish-fuscous, with a pale basal line. Hindwings pale fuscous-whitish, very faintly spotted with darker; cilia greyish, with a darker subbasal line.

In the neighborhood of *aulacana*, Meyr.

Melbourne, Victoria; one specimen.

Tortrix paurozona, n. sp.

Male, 16 mm. Head and palpi ochreous-white, post orbital rims fuscous, palpi fuscous at apex of second joint. Thorax fuscous, patagia ochreous-white. Abdomen fuscous, ochreous-whitish beneath. Legs ochreous-whitish, fuscous tinged. Forewings elongate, moderate, costa hardly arched, termen nearly straight, oblique; deep brownish-ochreous, with

ochreous-whitish markings; a moderately short inwardly oblique narrow transverse subcostal fascia, not reaching either margin, indicating outer edge of basal patch; two parallel, oblique narrow fasciæ, from inner margin before and beyond middle, reaching two-thirds across wing; a short fascia from apex of second streak to inner margin at three-fourths; a similar fascia from just beneath costa before apex to termen above anal angle; 3 or 4 spots on costa between one-third and apex; a small spot on termen below apex; cilia fuscous, mixed with ochreous-white. Hindwings dark fuscous, strigulated and spotted with yellowish, and with a streak of yellow above anal angle; cilia ochreous, with a dark fuscous basal line.

A peculiarly marked species, which I at first regarded as an extreme variety of *subfurcatana*, Walk., but the different arrangement and direction of markings of forewings and color of hindwings separate it. The markings of *both* wings are reproduced on underside.

Blackwood, South Australia; one specimen, in November.

LEPTARTHRA, n. g.

Head smooth, palpi small, porrected, second joint rather rough scaled, terminal joint short. Antennæ biserrate, very shortly ciliated. Forewings moderate, costa in male simple, costa gently arched, termen faintly sinuate beneath apex; vein 1 furcate towards base; 7 and 8 rarely stalked; 3 from angle. Hindwings with 3 and 4 connate; 5 widely remote, parallel to 4; 6 and 7 separate.

Somewhat allied to *Byrsoptera*, Lower, but differs by the smooth thorax, absence of secondary cell, and costa of hindwings.

The stalking of veins 7 and 8 of forewings is a curious form of variation; it is noticeable in one specimen only.

Leptarthra aulacodes, n. sp.

Male, 12-14 mm. Head and palpi ochreous. Antennæ and thorax fuscous, patagia light fuscous. Abdomen dark fuscous. Legs whitish-ochreous, posterior tibiæ infuscated, tarsi ringed with fuscous. Forewings elongate, moderate, costa gently arched, termen rounded, oblique, faintly sinuate beneath apex; deep reddish-ferruginous, mixed with blackish; basal area mixed with some bluish-metallic scales; two pairs of transverse, somewhat waved, outwards curved bluish-metallic fasciæ; first from before middle, second beyond middle, each pair becoming confluent on inner margin, interspaces between fasciæ filled in with dark fuscous; ante-

rior pair edged anteriorly throughout with dark fuscous; a bluish-metallic fascia, furcate on costa, from costa before apex, thence curved around before termen, and meeting previous fascia above inner margin; costa spotted with ochreous; costal portion of metallic markings ochreous; veins towards termen outlined with black; a fine black line along termen; cilia fuscous. Hindwings dark bronzy-fuscous; cilia ochreous, basal half dark fuscous.

Derby, Western Australia; two specimens, in September.

Dipterina gnophodryas, n. sp.

Male, 16 mm. Head, thorax, palpi, antennæ, and abdomen dark fuscous. Legs fuscous, posterior pair ochreous. Forewings elongate, moderate, costa gently arched, termen nearly straight, oblique; dull ochreous-whitish; costa spotted with fuscous throughout; two spots at three-fourths more distinct; basal patch fuscous mixed with some yellowish-ferruginous scales; outer edge limited by a blackish line, from one-fifth costa to one-fifth inner margin, strongly curved outwardly, and with a rounded projection in middle; median fascia narrow, fuscous, from costa at about two-thirds to inner margin before middle, lower half much attenuated and becoming yellowish-ferruginous; two or three narrow, transverse yellowish-ferruginous streaks between basal patch and fascia, not reaching costa, one sometimes connected with outer edge of basal patch in middle and becoming fuscous; two or three irregular transverse yellowish-ferruginous streaks bedull fuscous, obscure somewhat quadrate spot at anal angle; an irregular triangular fuscous patch just before middle of termen, containing some blackish spots on edges; some scattered blackish spots along termen; cilia ochreous-grey, base fuscous. Hindwings light fuscous, obscurely spotted with darker; cilia light fuscous, with a darker subbasal line.

Hobart, Tasmania; one specimen, in November.

Descriptions of New Species of Corals from the Australian Tertiaries.

By J. Dennant, F.G.S.

PART V.

Plates V. and VI.

[Read October 21, 1902]

The corals next described, though somewhat aberrant from the type species in regard to their costæ, should, I think, be placed under Milne-Edwards and Haime's genus Platytrochus. They are much compressed, and the longitudinal axial fossa contains a series of papilli, free superiorly, which might be mistaken for pali only that they are too irregularly placed, and, moreover, vary in number in separate individuals of the same species. These papilli not only occupy the fossa proper, but tend to spread beyond, especially in the lateral portions of the calice. They constitute the superior extension of the columella, which, lower down, is formed by the fusion across the central fossa of processes from the margins of the principal septa.

The several authors who have described species of Platytrochus from Alabama, the type locality, are not agreed concerning the structure of the columella. Edwards and Haime describe it as essential, fascicular, and terminated by a papillose surface*. De Gregorio, in describing *P. Claibornensis*, says that the columella is false, irregular, and formed of the pali.† Duncan, who diagnoses the genus, remarks:—"The columella is essential, elongate, and fascicular, and has a free papillary edge. * * * There is a lamellar, fascicular columella."‡ Finally, Vaughan, who discusses the genus at length in his admirable monograph of the Eocene and Lower Oligocene Coral Faunas of the United States, sums up his conclusions thus:—"Columella false, formed by the fusion of lobes from the inner margins of the septa, or by the fusion across the axial space of the inner margins of the septa."§

* Annales sci. nat., 3rd ser., vol. IX., p. 247.
† Mon. de la Faune Eocénique de l'Ala., p. 255.
‡ Revision of Madreporaria, p. 18.
§ Monographs of the U.S. Geological Survey, vol. XXXIX., pp. 73-4, Washington, 1900.

In regard to the Australian representatives of the genus, I remark that the inner margins of the septa for some distance in the fossa are free, and not fused with the papilli. This is plainly seen in recent examples, as well as in well preserved fossil ones. In a transverse section of a corallum the columella below its papillose surface presents a fascicular appearance, which is due no doubt to its having been formed by the fusion across the axial space of successive growths from the septal margins. In vertical section across the shorter diameter of the coral the columella shows as an irregular pillar, with lateral nodular offshoots to the adjoining septa on either side. A columella constructed on such a plan may, I think, be termed essential.

The species from Alabama described by Edwards and Haime have two kinds of costæ. Those on the middle of the broad surfaces of the corallum enlarge towards the calice, and those on the edges near the base are extended and large. A deviation from the type species in regard to both the costæ and septa was admitted by de Gregorio, who says concerning *P. Clairbornensis*:—"This species differs from the two preceding (*P. Stokesii* and *P. Goldfussi*) on account of its much more numerous, narrower, and less regular costæ and septa."* Now, the Australian species show further that the contrast alluded to by Edwards and Haime between the costæ on the edges and those on the flat surfaces cannot be regarded as of generic value. Of the four species of Platytrochus here described, one (*P. vacuus*, Ten. Woods), exemplifies the Alabama type of costæ (pl. v., fig. 4a), but the three others either have the costæ of the edges and sides much alike, or the distinction is trifling. Still, the calicular plan is the same, and in other respects also they are so closely allied to that species that they must be included with it in the genus.

In all, six species of Platytrochus are known in Australia, viz., one both fossil and recent, four fossil only, and one recent only.

Platytrochus Airensis, *spec. nov.*

Pl. v., figs. 1*a*, *b*.

Corallum free, compressed, and wedge-shaped, with the edges slightly sloping from the calice downwards, but contracting suddenly near the base, and then tapering to a point (in the corallum figured the extreme point is broken off). Calice shallow and elliptical, with its major and minor axes in the

* Loc. cit.

ratio of 3 to 2. Septa exsert, highly granular, and in six unequal systems, the central ones being smaller than those at the ends. The former contain three cycles of septa only, while in the latter a fourth cycle is fully developed, and the total number of septa in the calice is thus 40. The primaries are conspicuously longer and broader than the rest, which are subequal.

The central fossa is long, wide, and shallow, and is bounded by the free margins of the septa. The columella is formed by the fusion of processes from the principal septa in the manner already described. The papilli on its surface are irregular in shape, numerous, and spreading, especially in the lateral boundaries of the fossa.

The wall is stout, and the costæ, which are continuations of the septa, are prominent and ornamented with transversely elongated granules. Those on the flat surfaces of the corallum are broadest at the calicular margin, and gradually taper downwards, while those on the edges contract medially, but again expand as they approach the base. In some examples, probably aged ones, the costæ on the edges are distinctly broader than those on the flat surfaces, but usually the difference is so slight as to be easily overlooked. The two lateral primaries are curved, and follow the contour of the corallum from the calicular margin to the pointed base. The remaining costæ are straighter, and almost parallel with each other. The several orders are nearly or quite free to their basal terminations, with the exception of the more central pair of quaternaries in each end system, which fuse with the enclosed tertiary at a half to two-thirds from the margin of the calice.

Height of corallum, 8.5 mm.; length of calice, 6 mm.; breadth of calice, 4 mm.

Locality, &c.—Fairly abundant in Eocene strata at Wilkinson's No. 4 Aire coastal section and at Spring Creek, near Geelong. The type is from the former locality.

Platytrochus hastatus, *spec.* nov.

Pl. v., figs. 2*a*, *b*.

This species is smaller and more slender than the preceding, and has a prolonged, spear-shaped base. The costæ also are smooth, and rarely there is a shining, but very faint epitheca partially covering them. In typical examples the costæ of the edges and flat surfaces differ very little in size, but the former tend to become broader with age, and then the coral approximates in outline to *P. vacuus*, T. Woods, see *post*, which is, however, a more compressed form.

The septa and columella closely resemble the same structures in *P. Airensis*, and do not call for separate description.

The columella figured is 7.5 mm. high and the diameters of its calice are respectively 3.75 mm. and 2.5 mm. The calice chosen as type belongs to a larger example, and its diameters are 4.5 mm. and 3 mm. Its corallum is diminished by having the pointed end broken off, but still measures 8 mm. in height.

Locality, &c.—In Eocene strata at Muddy Creek, Spring Creek, Shelford, and on the banks of the Aire River at Fishing Point.

This species is also recent, and was dredged in Backstairs Passage, at the entrance to St. Vincent's Gulf, by Dr. Verco, who has handed me his examples (7) for examination.

Platytrochus curvatus, *spec. nov*

Pl. v., figs. 3*a*, *b*.

With the exception of its curved outline, the corallum of this species much resembles that of *P. hastatus*, but is generally narrower. It has a similar spear-pointed base, and the costæ are also smooth and delicate. An epitheca is, however, much commoner. In many specimens it is almost complete, and fairly dense, the costæ being visible only at the margin of the calice. In others it is partial and in transverse, irregular bands, while again some, like the type, show no trace of epitheca.

The development of the septa is less regular than in the two species just described. For example, in the type one of the end systems contains the same number of cycles as the central pair, viz., three, while in each of the other end systems there are in addition some septa of the fourth order; moreover, in this example one of the lateral primaries bends away from the line of the long axis of the calice.

The papilli of the columella resemble those of the other species of the genus. In the calice figured they are exceptionally large and few in number.

Height of corallum, 7 mm.; diameters of calice, 3 mm. and 2 mm.

Locality, &c.—Abundant in the Eocene of Muddy Creek, Spring Creek, and Shelford; less so at Curlewis, Moorabool Valley (Fyan's Ford), Wilkinson's No. 4 section, and Fishing Point.

A coral from Muddy Creek described and figured by Ten. Woods under the name of *Smilotrochus vacuus* long puzzled collectors, the alleged absence of a columella leading them off

the track. His species was evidently described from a young example, in which the columella was partially at least worn away by fossilization. He subsequently discovered the remnants of a columella in the species, and then established a new genus, Koilotrochus, for its reception, in the diagnosis of which he remarks:—"Columella rudimentary confined to a few papillary projections at the base of the deep and wide calicular fossa." Some corals collected by Mr. T. S. Hall and myself, also from the Muddy Creek beds, are, I consider, adult examples of Woods' species, but they possess a conspicuous papillary columella, which, combined with other characteristics, places them in the genus Platytrochus. A few young immature individuals accompany the adult ones in our gatherings, which, in regard to the corallum, resemble Woods' figure. Their septa also are arranged on the same plan as in his illustration of the calice, but instead of a vacant central space there is the usual columella of the species. When describing the calice, Woods gives its diameters as 3 mm. and 1.5 mm. respectively, or in the ratio of 100 to 50, but in his enlarged drawing the ratio of the axes is as 100 to 66! The species name is certainly an unfortunate one, as it contradicts an essential characteristic of the coral, but in accordance with common usage must be retained.

I redescribe the coral from an adult well preserved example, and also supply illustrative drawings.

Platytrochus vacuus, *T. Woods* (sp.).

Pl. v., figs. 4*a*, *b*.

1877. *Smilotrochus vacuus*, T. Woods, Proc. Roy. Soc., New South Wales, vol. xi., p. 190, pl. ii., figs. 2, 2a.

1878. *Koilotrochus vacuus*, T. Woods, Proc. Linn. Soc., New South Wales, vol. ii., pp. 313-4.

Corallum small, wedge-shaped, and much compressed. The edges are nearly but not quite straight until inferiorly they bend at a sharp angle, and almost meet at the broadly pointed, projecting base. The flat surfaces slope uniformly downwards.

Calice sub-plane and elliptical with its major axis double the length of the minor. Septa slender, granulate, and in six systems, which show the same cyclical arrangement as in *P. Airensis*. They are subequal in the central systems; also subequal but generally smaller in the end systems, except the two extreme primaries, which are the most prominent septa in the calice. The papilli of the columella resemble those in the three other species described.

Costæ smooth: on the flat surfaces they converge from the calice downwards to the projection at the base, while on the edges they are doubly curved, first inwards and then outwards; the central costæ are almost uniform in size throughout, but those flanking the edges become very broad at their basal terminations. Of the more central costæ a few only reach the base and are joined at varying heights on the wall by the rest; those adjoining the edges are free. A faint shining epitheca is sometimes present, especially in young examples.

Height of corallum, 5.5 mm.; diameters of calice, 4 mm. and 2 mm.

Locality, &c.—Eocene, Muddy Creek. Collected from a remade bed (junction of Eocene and Miocene) at Forsyth's, Grange Burn, by Mr. T. S. Hall, and by myself in the lower beds. Rare.

Conocyathus scrobiculatus, *spec. nov.*

Pl. vi., figs. 1*a*, *b*.

Corallum small and conical, with rounded, costulate base. Calice circular. Septa laterally spined, and in six systems with three cycles. They vary in length according to order, the primaries being longest. The tertiaries are slighter than the other two orders, which are subequal in size. There is no columella, but six elongate and prominent pali surround the central axial space, and are placed before the secondary septa.

There are four complete cycles of costæ, of which only the first three have septa corresponding to them. Those of the fourth cycle are very thin, but well marked at the calicular margin as delicate projections from the wall in the spaces between the other costæ; they reach only from a quarter to a third from the margin. The three lower orders are less slender than the fourth, and after passing these they enlarge to twice their former size. The tertiaries again cease abruptly near the base, to which only the twelve primaries and secondaries extend, and after passing the tertiaries they in turn become still stouter than before. All the costæ are smooth and free, there being no union of orders on the wall. In most specimens there is a regular series of punctations or pores in each intercostal space, but in a few young individuals these are replaced by minute dimples or fossettes. Apparently, therefore, the wall wears gradually away where it is thinnest, perhaps during fossilization, and the result is that the intercostal spaces become fenestrated.

Height of corallum, 5 mm.; diameter of calice, 2.5 mm.

Locality, &c.—Fairly common in the Eocene of Muddy Creek, Spring Creek, Shelford, and Mitchell R.; less so at Birregurra, Corio Bay, and Moorabool Valley. The type is from Spring Creek.

This species is closely allied to the recent *C. Zelandiæ*, Duncan,* but the latter is generally larger, and, besides, shows no intercostal pores or dimples. The costæ are similarly arranged in both. Duncan says that there are in his species rudimentary septa corresponding to the fourth cycle of costæ, but I have not observed them. My specimens are not from New Zealand, but from Port Jackson, New South Wales, and were obligingly presented to me by Mr. C. Hedley.

C. cyclostatus, T. Woods'† a common Muddy Creek coral, differs from *C. scrobiculatus* in being larger, and compressed, with an elliptical calice. It exhibits also the same costal peculiarities.

Ceratotrochus exilis, *spec. nov.*

Pl. vi., figs. 2*a*, *b*.

Corallum small, slender, curved or nearly straight, and gradually tapering to the pedicellate base.

Wall thin and covered by a transversely ridged epitheca, which, by wearing, becomes pitted with longitudinal lines of minute pores between the mural borders of the septa.

Calice circular. The septa are thin, wavy, granular, and in six systems, with three cycles. The primaries and secondaries are frequently lobed at their central ends; they are equal in size, and the tertiaries are not much smaller. The columella consists of a few comparatively large and variously shaped papilli. There are seven of these in the type, but some examples show only three or four.

Height of corallum, 9 mm.; diameter of calice, 2.5 mm.

Locality, &c.—Eocene at Cape Otway, Wilkinson's No. 4 section, Brown's Creek, Hamilton Creek, Gellibrand River, Fishing Point, Spring Creek, Shelford, Corio Bay, Curlewis, Mornington, Lower Maude. Rare in all the sections except the first, which is the locality of the type.

This coral is distinguished from the allied form identified by Duncan as *C. typus*, Seguenza, *var. Australiensis* ‡ by its slender, regularly tapering outline. Its columella also contains fewer papilli, and the septal orders vary less in length.

* Deep Sea and Littoral Corals. Proc. Zool. Soc. London, 1876, p. 431, pl. xxxviii., figs. 1-3.

† On some Australian Tertiary Corals. Roy. Soc. N.S.W., vol. IX., p. 188, pl. i., figs. 2, 2*a*.

‡ Australian Corals. Q.J.G.S., vol XXVI., pp. 298-9, pl. xix. fig. 8.

Ceratotrochus Halli, *spec. nov.*

Pl. vi., figs. 3*a*, *b*.

The corallum of the type is moderately tall, tapering, and cylindro-conical in shape, but my collection also contains short cylindrical corals similar in other respects and with calices of equal diameter. These are not more than a variety, and may even be young examples of the species. They retain the scar of former attachment, which in the longer, tapering coralla is frequently worn off. At the basal termination of the latter some orders of septa and an incipient columella are occasionally visible.

Calice sub-plane and almost circular, the ratio of the major and minor axes being as 100 to 93. In the short specimens the calice is rarely more elliptical. Septa stout, equal, and in six systems with three cycles. The primaries remain free till they reach the columella; the tertiaries bend towards and usually unite with the secondaries, which then generally, but not uniformly, become stouter. In the type the secondaries after their union with the tertiaries are exceptionally stout. All the septa are characteristically beset with long and stout spines, placed at right angles to their sides, and in rows parallel with their upper margins.

The columella is essential and fascicular, and consists of irregular processes, which, though connected with the first and second orders of septa, are independent structures. In one example the columella has nodules on its upper surface.

The wall is stout and covered by a strong epitheca. The costæ, which correspond with the septa, are represented by rounded elevations, broad at the summit, and gradually becoming smaller towards the base. They are crossed by a series of arched, slightly raised lines or ridges of epitheca, some of which are stronger than the rest.

Height of corallum, 9.5 mm.; diameters of calice, 3.75 mm. and 3.5 mm. The dimensions of the calice remain fairly constant in the examples, but the height varies from that given above for the type down to about 2 mm. in the variety mentioned.

Locality, &c.—Rare in the Eocene of Spring Creek, near Geelong. One example also from Brown's Creek, and another from Altona Bay.

The species name is in compliment to Mr. T. S. Hall, who has placed his interesting collection of tertiary corals at my service.

The next coral to be described I place in the genus Cyathosmilia, which was established in 1878 by Ten. Woods for the

reception of two species from Aldinga. His diagnosis of the genus is very brief, and reads thus:—"Simple pedicellate corals with endotheca and pali. No columella."* Woods is, however, mistaken in regard to the last statement, as there is a decided columella in his type species, *C. laticostata*. I collected many examples of this some years ago at the Aldinga section, and, though in some of them the columella is inconspicuous, being probably worn away by fossilization, it can in most calices be plainly discerned as a styliform process. The second species described by Woods, *C. tenuicostata*, belongs doubtfully to the genus. The diagnosis of the genus is corrected and amplified as follows:

Genus Cyathosmilia, *T. Woods* (*emend.*).

Corallum curved or almost straight, and usually long, cylindrical or slightly compressed, and pedicellate. Calice circular or elliptical. Septa in six systems with three cycles. Pali in one crown. Columella essential and styliform. Costæ covered by a complete epitheca. Endotheca fairly developed.

Cyathosmilia velata, *spec. nov.*

Pl. vi., figs. 4*a*, *b*.

Corallum tall, horn-shaped, and usually slightly tapering to its pedicellate base, where the scar of former attachment is frequently preserved. The specimens are fairly uniform in shape, but a few are elliptical in transverse sections, while the majority are circular or nearly so. Occasionally the corallum bears just a perceptible crest at the outer edge of the curve. Calice of moderate depth and either circular (as in type) or slightly elliptical. The primary septa are rather longer than the secondaries, but otherwise equal; tertiaries much smaller. At the surface all are slender, especially the tertiaries, but the first two orders increase in thickness downwards. Pali six in number, elongate, and before the secondary septa. The columella is superiorly sometimes a single, sometimes a double style. It is generally connected with the pali by endotheca, which is fairly abundant in the central fossa. There is also more or less endotheca at the margin of the calice and between the septa. In the above description of the calicular structure the type and a younger specimen are especially indicated. My collection contains numerous individuals, but with the exception of these two, the upper fragile portion of the calice has been worn away.

* On some Fossil Corals from Aldinga. Phil. Soc., Sth. Austr., vol. I., p. 113.

Still, in many of them the structure of the septa, pali, &c., is easily made out.

The wall is thin and covered by a smooth epitheca, having wavy transverse lines and concentric folds. There are broad costæ corresponding to the first and second orders of septa, but they are barely traceable beneath the epitheca; the tertiary septa have no costæ corresponding to them. The intercostal spaces are usually marked by a double row of very fine pores, due to the wearing of the epitheca. As this wears still further the costæ and the pores between them become very conspicuous, until finally, by its complete removal, a skeleton of the coral is left, showing twelve strong costæ reaching from the pointed base to the margin of the calice, where they are continued as septa. Such skeleton coralla are very numerous at the chief locality, Brown's Creek.

The dimensions of the type, which is a good representative adult specimen, are:—Height of corallum, 17.5 mm.; diameter of calice, 4.5 mm.

Locality, &c.—Very abundant in Eocene strata at Brown's Creek; less so at Hamilton Creek and Wilkinson's No. 4 section, all of which are neighboring localities in the Cape Otway district of Victoria.

A comparison of this description of *C. velata* with that of *C. laticostata* by Ten. Woods shows that the two species are closely allied. The latter is more elliptical as to its calice as well as in transverse sections of the corallum. Its costæ also are more prominent, while the crested ridge on the outer edge of the curved corallum becomes a constant and distinctive feature.

EXPLANATION OF PLATES.

Plate V.

Fig.
1. *Platytrochus Airensis—a*, corallum, 4 diam.; *b*, calice, 6 diam.
2. *Platytrochus hastatus—a*, corallum, 4 diam.; *b*, calice of another example, 8 diam.
3. *Platytrochus curvatus—a*, corallum, 4 diam.; *b*, calice, 10 diam.
4. *Platytrochus vacuus—a*, corallum, 6 diam.; *b*, calice, 8 diam.

Plate VI.

1. *Conocyathus scrobiculatus—a*, corallum, 6 diam.; *b*, calice, 12 diam.
2. *Ceratotrochus exilis—a*, corallum, 3 diam.; *b*, calice, 12 diam.
3. *Ceratotrochus Halli—a*, corallum, 3·5 diam.; *b*, calice, 8 diam.
4. *Cyathosmilia velata—a*, corallum, 2 diam.; *b*, calice, 6 diam.

List of the Edible Fish of the Lower Murray.

By A. H. C. Zietz, F.L.S., C.M.Z.S., &c.

[Read October 21, 1902.]

In the following list I have enumerated all the fish which frequent the Lower Murray near its mouth, including Lakes Alexandrina and Albert. It often happens that the current is insufficient to keep the sea water out, which enters through the narrow channel at the mouth of the river, making the water brackish and uninhabitable for many fresh water species. These are then driven back a long way up the river, where the water remains fresh. It naturally follows that with the salt water many marine species find their way into the river. But I do not intend to deal with these occasional visitors in this list.

I have given the vernacular and scientific names of each species, and also, where it is known to me, the name in the language of the Narrinyeri tribe of aborigines, to whose district this part of the Murray originally belonged.

1. Lates colonorum, Gnth. Salt Water Perch.
Native name, *"Taralge."*

This fish is found in fresh as well as brackish water, and extends as far down as the river mouth.

2. Ctenolates ambiguus, Macleay. Golden Perch.
Native name, *"Tarkee."*

Found only in fresh water.

3. Oligorus macquariensis, Gnth. Murray Cod Perch.
Native name, *"Pondee."*

Fresh water. Sometimes found dead, apparently killed by the salt water which collects at the bottom of Lake Alexandrina.

4. Therapon Richardsoni, Casteln. Black Bream.
Native name, *"Tcheeree."*

Fresh water; only occasionally seen in the market. Mr. J. Douglas Ogilby unites this fish with *Therapon niger*, Cast., which, however, I consider to be distinct from the former species.

4a. Micropena.

5. Chrysophris australis, Gnth. Bream.

This fish is found both in fresh, brackish, and salt water, and has a wide distribution.

6. Arripis Georgianus, Cuv. and Val. Tommy Rough.

Native name, "*Wankaldee.*"

A marine species, but said to occur also in the Lower Murray.

7. Agonostoma diemensis, Richs. Fresh Water Mullet.

Native name, "*Conmuree.*"

This excellent food fish is very numerous in the Murray, but I do not know how far up the river it occurs. I have also seen specimens caught in the Port Adelaide River.

8. Mugil dobula, Gnth. Jumping Mullet.

Native name, "*Wankaree.*"

I have seen large shoals of this fish in the Murray at Goolwa, but it is also found in the Onkaparinga, Port Adelaide River, and in many other localities on our coast.

9. Sciaena aquila, Risso. Mulloway.

Native name, "*Mulloway.*"

This widely distributed marine species, which attains a large size, is sometimes found in great numbers. It enters rivers, and is sometimes found beyond the influence of the tide.

10. Copidoglanis tandanus, Mitch. Catfish.

Native name, "*Pammoree.*"

This fresh water fish is very common in the river, as may be judged from the great number of fish occasionally seen in the market.

11. Pseudo-aphrites Bassii, Castl. Sanding.

Native name, "*Congaldee.*"

This fish, which attains a length of about 1 ft., is fairly common on our coast. It is abundant in the River Murray, and in the River Torrens, near Adelaide, but it is also found in many of the larger creeks. It is good eating, but its main importance is its use by the fishermen as bait for catching Mulloway. Some years ago it was known to science by only a single specimen, but has since been discovered at other localities, including the Yarra, near Melbourne, whence I have received several specimens.

12. Chatoessus erebi, Rich. Bony Bream.

Native name, "*Tukkaree.*"

Although fairly common species in Lake Alexandrina, it is seldom used by white men as an article of food. But it is frequently consumed by the aborigines.

The following species also occur in the Murray, but are either too small or not numerous enough to be of any importance as an article of food:

13. Eleotris mogournda, Rich. (also Rivers Onkaparinga and Torrens.
14. Eleotris sp. (not identified).
15. Gadopsis marmoratus, Rich. (also Rivers Onkaparinga and Torrens).
16. Gobius sp. (native name, "*Takarakee*").
17. Gobius frenatus, Cast. (native name, "*Tarkatukee*").
18. Galaxias attenuatus, Jenyns. Mudfish.
    Native name, "*Pulangee.*"
19. Atherina sp. (native name, "*Parlee*").
20. Retropinna Richardsoni, Gill. Australian Smelt.
    Native name, "*Kantaree.*"
21. Geotria chilensis, Gray.
22. Geotria australis, Gray.
23. Mordacia mordax, Rich.

Notes on the Geological Features of Southern Yorke Peninsula.

By T. C. Greenway, B.Sc., and H. Tarlton Phillipps.
Communicated by Walter Howchin, F.G.S.

[Read October 21, 1902.]

Plate VII.

The late Professor Tate, in a paper read before this Society in 1889, on the Botanical Features of Southern Yorke Peninsula, gave a brief introductory sketch of the geology of the district, in which the Pleistocene deposits, Eocene limestones, and Archæan rocks were briefly described, and the recent elevation of the land, which lead to the existence of a "deserted seaway," in the Great Salt Marsh, were noted.

In 1900 Mr. Walter Howchin, F.G.S., read a paper on Evidences of Extinct Glacial Action in Southern Yorke Peninsula, in which it was shown that the glacial till beds formed the dominant geological features of the district, and occupied a stratigraphical position inferior to the Eocene limestones. The same author, a few months later, in a second paper, advanced the theory that the "salt lagoons" of the southern portions of the Peninsula (outside the area of raised beaches) were not of marine origin, but were the result of (a) the removal of the greater part of the lower Tertiary limestones by chemical solution; (b) the upper surface of the glacial clay forming a retentive floor; and (c) that the secondary deposits of travertine and saline substances were the reconstructed equivalents of the removed limestones.

It has thus been shown by the last-named author that these lagoons of the Peninsula must be divided into two classes with reference to their origin: (1) The salt lagoons produced by the removal of the Tertiary beds by solution; (2) raised beaches.

Since those belonging to class 1 occupy depressions in the surface of the glacial clay, which underlies practically the whole of the southern portion of the Peninsula, they are of considerable geological importance as indicating those districts where the glacial clay approaches the surface. Outside these areas we may, therefore, conclude that the glacial clay underlies porous beds, which do not allow the water to accumulate. The

discovery of extensive deposits of polyzoal limestone of Eocene age between Yorketown and Edithburg has shown this to be the case.

As these lagoons have been discussed in considerable detail by Mr. W. Howchin we shall confine our attention to the consideration of the second class, namely, salt marshes and raised beaches produced by a retreat of the sea consequent on a gradual elevation of the land, which has taken place in recent times. Of the latter class the great salt marsh known as Peesey Swamp, extending completely across the Peninsula from Sturt to Hardwicke Bay, forms a notable illustration.

Raised beaches occur at intervals along the coast from Point Turton at the Northern extremity of Peesey Swamp to Sturt Bay on the south. In many cases these extend a considerable distance inland, their continuity being only broken by ridges of calciferous sandstone, terminating in the headlands, some of which attain a height of 300 ft., or occasional cliffs of the same material, which in many cases must have flanked the ancient shore line.

The most extensive of these marginal raised beaches occupies the area between Point Souttar and Corney Point, extending along the coast for about fifteen miles, and in some instances stretching inland for nearly four miles. Like many of the others, this is flanked by cliffs of calciferous sandstone 60 ft. in height, which at Point Souttar rest directly on a bed of red clay 2 ft. thick, under which is 6 ft. of greenish clay lying unconformably on the highly inclined metamorphic rocks.

A raised beach was also observed overlying the Eocene about one mile west of Point Turton, and separated from it by a bed of travertine, which may represent an old land surface. Of the others the following are the principal occurrences: The Drains, Pipeclay Lagoon (Section L, Caribee), Emu Waterhole, Hilderowie Well, chain of salt lagoons lying between Marion B. and Pondalowie Bay, Stone Hut, Swivel's Hut, MacIntyre's section (Section 6, Moorowie), Tuckok Cowie.

Recent.

In an excavation in Section 42, Moorowie, a raised beach was observed, largely composed of the foraminiferal tests of *Orbitolites complanata*. Specimens of *Arca trapezia* and the pearl oyster (*Maleogrina margaretifera*) were also obtained. To-day both the pearl oyster and the *Orbitolites* are only found in warmer seas of Australia and elsewhere, and hence afford striking evidence of the climatic or other changes which have

taken place in recent times. This deposit extends for some distance through Sections 44 and 46, and evidently belongs to an older series than the raised beaches already described. In the raised beaches of Yorke Peninsula we have represented, therefore, two distinct geological horizons, corresponding exactly with the upper and lower series described by Mr. W. Howchin in connection with the raised beaches of Port Adelaide with which they may be correlated.

The height of Peesey Swamp above sea level, as shown by the aneroid, proved to be 25 ft., and the heights of all the other raised beaches being taken, it was found that they all lay between 25 ft. and 40 ft., the greater number having an elevation of about 25 ft.

Professor Tate, in the paper already referred to, suggests two possible origins of the raised beach extending across the Peninsula from Sturt Bay to Hardwicke Bay, now known as Peesey Swamp—1. A general elevation of the land. 2. The blocking up of the mouths of a shallow strait by blown sand. Now, as pointed out, there is a series of raised beaches occurring at short intervals round the southern and south-western coast of Yorke Peninsula, all having about the same elevation above sea level. This, taken in conjunction with the fact that the characteristic shells of nearly all these are the same, would seem to suggest that the whole area was simultaneously subject to a general upheaval in recent times converting all the shallow bays and straits into raised beaches and swamps, and leads to the conclusion that Peesey Swamp has probably been produced by elevation.

The chain of salt lagoons lying between Marion and Pondalowie Bays, unlike those in the neighborhood of Yorketown, is evidently of marine origin, and, like Peesey Swamp, is probably the remains of a shallow strait which stretched right across the Peninsula. The silt forming the floor of these lagoons directly overlies calciferous sandstone, which no doubt was denuded away by tidal action, which must have been at times very considerable.

Professor Tate has suggested that the beds of natural whiting which occur in this neighborhood have been produced by "the exfoliation of incoherent shell banks." That this is the case is shown by the fact that the silt also consists largely of natural whiting, which has evidently been derived from the disintegrating shell banks which form the most characteristic feature of these lagoons.

Pleistocene.

Beds of this age are widely distributed over the south-western portion of Yorke Peninsula. In general they consist mainly of calciferous sandstones, which, however, vary considerably both in texture and composition passing from a slightly calcareous sandstone to an almost pure granular limestone containing only a small percentage of silica. These first appear at Point Souttar as cliffs varying from 50 to 60 ft. in height, which continue to form the most characteristic feature of the coast as far round as Cape Spencer, where they attain a height of 300 ft. In many cases, notably at Cape Spencer, they are intercalated with lenticular beds of clay of from 1 to 2 ft. in thickness, and exhibit current bedding to a remarkable degree, which facts would seem to indicate that they were laid down in shallow water probably as an estuarine deposit.

On examination of various wells in the vicinity of Point Souttar, Corney Point, Jones' Sandhills, &c., showed these beds to overlie the glacial clay, which in its turn rests directly on the metamorphic rocks. At and in the neighborhood of Cape Spencer the glacial clay has either been completely eroded away or never existed, as the Pleistocene sands rest directly on the metamorphic rocks.

As yet there is but little direct evidence to show that these deposits are of Pleistocene age. Professor Tate has correlated them with the Pleistocene of Robe and Beachport, to which they bear a marked resemblance, both in their physical characteristics and in that, like the cliffs at Robe, they contain numerous root-like structures. Unlike the cliffs of Robe, they are apparently unfossiliferous, and contain no evidences of life, with the exception of certain foraminifera, which, however, do not definitely determine the age. At Corney Point they rest unconformably on the Eocene, whence it is evident that they are at any rate post-Eocene.

Miocene.

It has long been known that there is a deposit of Miocene age resting unconformably on the eroded surface of the Eocene, extending from a point $1\frac{1}{4}$ miles south of Edithburg to Wool Bay, a distance of about 4 miles in a straight line. Until lately no attempt had been made to determine its extent inland. Its occurrence was then noted in a well two miles to the west of Edithburg by M. H. Basedow (Trans. Roy. Soc., 1901).

We have noted further occurrences of Miocene in Lloyd's Section 263, Dalrymple, 3¼ miles north-west of Yorketown, and in a well in Cope's section (Section 47, Moorowie). Both these deposits consisted of a hard white sub-crystalline limestone, containing: *Pecten sub-bifrons*, *Pecten palmipes*, *Pecten consobrinus*, *Pecten anti-australis*, *Limatula Jeffreysiana*, *Ostrea arenicola*, *Placunanomia ione*. In the latter case the Miocene beds are 11 ft. in thickness, and rest directly on the glacial clay. Similar deposits, probably of the same age, were also observed at Kangaroo Flat, Section 35, Moorowie, and at Pink Lake, M.L., 266, Melville.

Eocene.

Rocks of this age are extensively represented between Yorketown and Salt Creek by beds of polyzoal limestone similar to those of Wool Bay both in color and texture, the upper portions being a light yellow, which changes to a dark red towards the base of the formation. This deposit was also noted in wells in the following sections:

1. Section 261s, Melville. 32 ft. to water. Polyzoal limestone.
2. Section 259, Melville.
3. Section 267, Melville. 80 ft. to water. Polyzoal limestone.
4. Boundary between Sections 267-268, Melville. 88 ft. Polyzoal limestone. 27 ft. White glacial sand to water.
5. Section 273, Melville. 36 ft. to water. Polyzoal limestone.
6. Section 80, Dalrymple. 40 ft. Polyzoal limestone. 5 ft. Conglomerate to water.

The fact that the color of the polyzoal limestone of Wool Bay and the above localities shows similar variations at various depths, the characteristic fossils of each being identical would seem to show that these are all portions of one and the same deposit. That this is the case is clearly demonstrated by numerous well sections taken at points intermediate between Yorketown and the east coast.

It will be seen from the sketch section (Plate vii.) that the Eocene beds occupy an eroded hollow in the glacial clay some 80 ft. in depth, showing that a considerable period of time must have elapsed between the laying down of the glacial clay and deposition of the Eocene limestones, especially as the land surface must have undergone depression to an extent of at least 80 ft. before this could take place.

Mr. W. Howchin, F.G.S. (Trans. Roy. Soc., June, 1900) has noted the occurence of Tertiary beds at Point Turton and Corney Point. The former first appear about half a mile east of the jetty, and extend along the coast in a westerly direction for a distance of about 2½ miles, forming an anticline rising from sea level at either end to a height of 55 ft. at the apex. The Miocene clays occupy a hollow in the eroded surface of the Eocene, which consists of polyzoal limestone, and at the western extremity of the anticline this limestone is being altered into the travertine which overlies it.

At Corney Point the outcrop of Eocene is very limited, extending along the coast for 30 ft. only, and having a thickness of 6 ft. It directly overlies the metamorphic rocks.

Glacial Clay (? Permo-Carboniferous).

There can be little doubt that the glacial clay underlies practically the whole of the southern portion of Yorke Peninsula. The principal known exposures were noted by Mr. W. Howchin (Trans. Roy. Soc., June, 1900) at—West of Troubridge Hill, Port Moorowie, Point Turton, Warooka, Yorketown, &c. In the last case the clay comprises the whole of the lake country in that neighborhood, an area of about sixty square miles. The thickness of this and the nature of the underlying formations have long been matters of speculation.

We have noted the boulder clay in the south-west portion of the Peninsula its thickness being shown by wells in the following localities, gneissic rocks in all cases underlying it:—

1. On the coast at Point Souttar, Section 133, Parawurlie. Thickness of clay, 6 ft.
2. The Leaven's section, 140E, Parawurlie. Thickness of clay, 15 ft.
3. Gaeter's Section 163, Parawurlie.
4. Hayes' Section 89, 90, Carribie. Thickness of clay, 9 ft.
5. Section 102, Carribie, five miles south of Corney Point, Thickness of clay, 12 ft. 6 in.
6. Bob's Well, Section 8, Warrenben. Thickness of clay, 16 ft.

In all the above sections Pleistocene sands or limestones overlie the glacial clay. A bore 305.5 ft. in depth, sunk about one mile east of Yorketown failed to penetrate the clay, which evidently rapidly diminishes in thickness in a westerly direction. As shown by the well sections, it will be seen that these wells lie on a line about four miles from the coast extending from Point Souttar to a point about ten miles north of Cape

Spencer. That this line approaches the present westerly limit of the glacial Till is shown by the fact that the Pleistocene sands rest directly on the metamorphic rocks at all the principal headlands on this part of the coast, the clay in all cases being absent.

Further Glacial Evidences.

In a small lagoon a quarter of a mile east of Moorowie Head Station, two large erratics of granite occur, measuring 7 ft. x 6 ft., and 3 ft. x 1 ft. respectively, exposed above the land surface. Several smaller erratics (one of which a microscopical section has shown to be diabase) were seen in the adjoining fields.

On the western shore of Davey's Lake, Section 478, Melville, due south of Pink Lake, over 100 erratics were counted, many of them being of considerable size. The two largest consisted of quartzite and granite respectively, and measured 3 ft. x 2 ft. 6 in. and 2 ft. x 18 in. exposed above the surface ground, the granite being chiefly characterised by large crystals of orthoclase. The smaller stones consisted mainly of quartzite and granite. A small erratic also occurs beside the main road to Corney Point at the junction of Sections 158 and 159, Carribie. In all cases the different rocks of which the erratics are composed may be seen *in situ* in various localities along the south and west coasts.

Archean.

Rocks of this age are very widely distributed over southern Yorke Peninsula, underlying the glacial clay, and forming the basal portion of nearly all the headlands on the west and south-west. In general they are gneissic in character, and show no traces of a sedimentary origin, unless it be in some very obscure (?) bedding in some of the rocks at Point Souttar. In nearly all cases they are highly contorted, and show large developments of biotite along the lines of foliation, indicating a very advanced state of metamorphism, which, as a rule, becomes more pronounced as the southern portions of the Peninsula are approached.

Metamorphic rocks first appear at Brutus Castle, on the north-west coast, as low reefs of aplite and fine-grained hornblendic gneiss, the latter passing into hornblendic schist where the crushing has been extreme. In this outcrop, which extends along the coast towards Corney Point for about four miles, a very remarkable rock occurs, consisting of a granulitic base of quartz and pink felspar with ragged sections of a very strongly pleochroic amphibole, the predominant color of which

is a dark blue. This is in all probability Riebeckite, which has only lately been found in the granites of Socotra and some of the British eurites. A notable point in conection with this outcrop is the absence of dykes, which form such a characteristic feature in all the others.

At Corney Point the rocks consist of gneiss and hornblendic schist, intersected in all directions by dykes of pegmatite characterised by large masses of microcline and oligoclase felspars and segregations of quartz. That these are dykes and not segregation veins is shown by the following facts:—

1. That in some cases we find fragments of gneiss entangled in the intrusive masses.

2. That the dykes strike across the folia of the gneiss, which in some cases have been drawn round from their original positions into a direction more or less parallel to the line of flow of the intrusive mass in a manner suggestive of a semi-viscous mass forcing its way through a fissure in a rock reduced to a quasi-plastic condition by heat and pressure.

3. Contact metamorphism is strongly evidenced in the neighborhood of many of the dykes by the development of large masses of biotite at the line of contact, and sometimes by an alteration of the adjacent rock.

In all other cases the metamorphic rocks are similar to those of Corney Point, containing segregations more or less acid in character, and sometimes crystals of wolfram, amphibole, &c. On the south side of Daly Head, which, like most of the others, is composed of Pleistocene sands resting on metamorphic rocks, they occur in the form of low reefs running out into the sea, separated by short stretches of sand. As far as can be seen, these reefs are identical in composition. A curious point is that two adjacent reefs, like the pebbles of MacDonnell Bay, are completely coated with silica, while in the others this phenomenon is absent. Why these and not the other reefs should be so affected it is difficult to see, as they all strike in the same direction and occupy similar positions relatively to the sea.

In the gneiss at the base of Cape Spencer a large dyke of dolorite occurs, resembling a huge dumbbell in shape about 100 ft. long by 50 ft. in width at the broadest part. This is intersected along its major axis by a dyke of gneissic aplite which meets a narrow dyke of gneissic biotite granite running through the dolorite at right angles to the former. The granite and aplite dykes, however, do not cut one another.

An outcrop of metamorphic rocks extends along the coast

between Hillock Point and Point Yorke for about five miles. These mainly consist of gneiss, more or less granitoid, characterised by numerous veins of quartz and felspar. The gneiss is usually coarsely crystalline, the folia being very clearly defined, while the granite is mainly reddish in color, and contains numerous acid segregations.

The principal feature of this locality is a large dyke of diorite. In the neighborhood of this the gneiss is contorted to a remarkable degree, masses of biotite, exceeding 2 ft. in thickness, being developed in the vicinity of some of the dykes as a result of contact metamorphism, the biotite in many cases passing first into an augen gneiss, and then into a true granite or gneiss at a short distance from the dyke. These dykes of dolorite and diorite respectively are of special interest as being the only known occurrences of unaltered basic eruptive rocks in southern Yorke Peninsula.

Conclusion.

Additional evidence in favor of Mr. W. Howchin's theory as to the origin of the salt lagoons in the neighborhood of Yorketown is furnished by the fact that these seem to be confined entirely to the district where the glacial clay outcrops, and since we find beds of Tertiary limestone on either side of this district, we may, therefore, infer that the intermediate deposits have been removed by solution as he suggests. Furthermore, at Point Turton, where the polyzoal limestone is exposed in the cliff face, we have unmistakable evidence of its replacement by travertine, which attains a thickness of from 15 to 16 ft., and in some cases penetrates nearly to the base of the formation. Outside this lake area we find numerous salt lagoons and marshes, which, however, not only differ in a very marked manner from the former in their physical characteristics, but also present unmistakable evidence of their marine origin in numerous exfoliating shell banks.

A glance at the sketch section from Corney Point to Edithburg will show that the glacial till was laid down in an eroded hollow in the Archæan rocks, which increases in depth towards the east, the principal Eocene deposits occupying an analogous position with regard to the glacial clay, while the Miocene beds were likewise deposited in a hollow on the east side of the Eocene. The striking similarity existing between these three cases is suggestive of a common agent of erosion, though possibly the erosion of the Archæan rocks may have been brought about by a glacier flowing along a depression bounded

on the east by the hills at Hallet's Cove and on the west by a ridge of metamorphic rocks, the remains of which appear at the present day at the base of the more recent formations along the south-west coastline of southern Yorke Peninsula.

Our acknowledgments are due to Messrs. E. H. Matthews and J. Mitchell, of Yorketown, and Mr. Barclay, of Corney Point, and to others who by their kindness rendered possible what otherwise would have been a task of no little difficulty.

List of the Described Genera and Species of the Australian and Polynesian Phasmidæ (Spectre-Insects).

By J. G. O. Tepper, F.L.S., F.S.Sc., &c.

[Read October 21, 1902.]

1. MYRONIDES, Stăl, Rev. Orth., III., p. 8, 1875.

(Type—*Lonchodes Pfeifferæ*, Westw., Cat. Orth., p. 44, pl. 5, f. 6.)

M. FILUM, Sharp, Willey's Zool. Results, 1897, p. 81, pl. 7, f. 1.
M. BINODES, Sharp, *l.c.*, f. 2.
M. BITUBER, Sharp, *l.c.*, p. 82.
M. SIMPLEX, Sharp, *l.c.*, p. 83, f. 3.
M. SORDIDUS, Sharp, *l.c.*, p. 83.
M. RAMULUS, Sharp, *l.c.*, p. 83.
Hab.—New Britain.

2. LONCHODES, Gray, Syn. Phas.; Westwood, *l.c.*, p. 36; Stăl, *l.c.*, p. 8, 66.

(Type—*L. geniculatus*, Westwood.)

L. NIGROPUNCTATUS, Kirby, Trans. Linn. Soc., Lond., VI., p. 453.
Hab.—Lizard Island (Queensland).

3. DIXIPPUS, Stăl, *l.c.*, p. 9, 66 (1875).

(Types—*Lonchodes nematodes*, Westw. (female), Cat. Phas., p. 421; and *Phasma* (*Bacteria*) *nodosum*, DeHaan (male), Orth., p. 133.)

D. (?) INSULARIS, Kirby, *l.c.*, p. 460.
Hab.—Thursday Island (New Guiuea).

4. HYRTACUS, Stăl, Rev. Orth, p. 10.

(Type—*Bacteria eutrachelia*, Westw., *l.c.*, p, 32, pl. 34, f. 11).

H. TUBERCULATUS, Stăl, *l.c.* (*B. eutrachelia*, Westw.), p. 67.
Hab.—Western Australia.

5. BRACHYRTACUS, Sharp, Willey's Zool. Results, 1898.

B. CELATUS, Sharp, *l.c.*, p. 84, pl. 7, f. 4.
Hab.—New Britain.

6. PACHYMORPHA, Gray, Syn. Phas.; Stăl, *l.c.*, p. 9 (*Phasma, Bacillus* &c., auct.).

P. SQUALIDA (Hope), Gray, *l.c.*; Westwood, Cat. Orth., p. 15, pl. 22, f. 4 (fem.).

Hab.—Australia.

P. (?) SIMPLICIPES, Serv.; Westwood, *l.c.*, p. 15.
Hab.—Australia.

P. HISTRICULEA, Westwood, *l.c.*, p. 16, pl. 1, f. 4 (fem.); Hutton, Trans. N.Z. Inst., XXXI., p. 52.
Hab.—New Zealand.

P. NOVÆGUINEÆ, Kaup, Berl. Ent. Zeitschr., XI., p. 26 (1871).
Hab.—New Guinea.

P. ANNULATA, Hutton, Trans. N.Z. Inst, XXX., 1897, p. 162.
Hab.—New Zealand.

P. SALEBROSA, Hutton, *l.c.*, XXXI., p. 52.
Hab.—New Zealand.

P. ACORNUTA, Hutton, *l.c.*, p. 53.

7. CANDOVIA, Stăl, *l.c.*, pp. 12, 70.

(Type—*Bacteria coenosa*, Gray (Hope MS.)).

C. COENOSA, Gray; Westwood, *l.c.*, p. 33, 71 (*B. tenuis*, Hope, male; *B. coenosa*, female, *B. fragilis*, larva, Hope).
Hab.—North Australia.

8. PROMACHUS, Stăl, Rev. Orth., p. 17.

P. SORDIDUS, Kirby, Trans. Linn. Soc. Lond., VI., p. 463, pl. 40, f. 4.
Hab.—Thursday Island (N. Guinea).

9. PHIBALOSOMA, G. R. Gray, Syn. Phas.; Stăl., *l.c.*, p. 28.

(*Cladoxerus*, Gray, male; *Cladomorphus*, Gray, female; *Xylodus*, Sauss., female).

The genus extends to India and South America.

P. CAPRELLA, Westwood, Cat. Phas., p. 76, pl. 21, f. 3 (male).
Hab.—Australia.

P. DAVIDIS, LeGuill.; Westw., *l.c.*, p. 77.
Hab.—Solomon Islands.

P. BRITANNIÆ, Wood-Mason, Journ. Asiat. Soc. Bengal, XLVI., p. 75, 351. *P. feejeeanus*, Westw.).
Hab.—New Britain.

P. APOLLONIUS, Westwood, *l.c.*, p. 181, pl. 40, f. 4 (female).
Hab.—Fiji Islands.

10. BACTERIA, Latr.; Stăl, *l.c.*, p. 29.

Most of the species of this genus have been distributed among other genera by Stăl.

B. FRENCHI, Wood-Mason, Ann. Mag. Nat. History, Fourth Series, vol. XX., 1878, p. 78.
Hab ?—

11. BACTRIDIUM, Saussure, Mel. Orth., I., 1868-71, p. 125; Stal, *l.c.*, p. 30.

B. COULONIANUM, Sauss., *l.c.*, p. 126, pl. 2, f. 8.
Hab.—? Australia (? Chili).

12. CLITARCHUS, Stăl, Rev. Orth., III., p. 34, 82.

(*Bacteria*, *Bacillus*, *Acanthoderus*, &c., auct., pars.)

C. HOOKERI, White, Zool. "Ereb. and Terr.," p. 24, pl. 6, f. 6; Westwood, Cat. Phas., p. 14; Hutton, Tr. N.Z. Inst., 1898, p. 54.
Hab.—New Zealand.

C. COLOREUS, Colenso, Trans. N.Z. Inst., XVIII., p. 151; Hutton, *l.c.*, 54.
Hab.—New Zealand.

C. LAEVIUSCULUS, Stăl., *l.c.*, p. 82; Hutton, *l.c.*, p. 56.
Hab.—New Zealand.

C. REDUCTUS, Hutton, Trans. N.Z. Inst., XXXI. (1898), p. 55.

13. ARGOSARCHUS, Hutton (*Clitarchus*), Trans. N.Z. Inst., XXX., 1897, p. 165; XXXI., 1898, p. 58.

A. HORRIDUS, White, *l.c.*, p. 24, pl. 5, f. 4; Westwood, *l.c.*, p. 49; Hutton, *l.c.*, 58.
Hab.—New Zealand.

A. GERHARDII, Kaup., Proc. Zool. Soc. Lond., 1866, p. 577.
Hab.—Southern Island, New Zealand.

A. SYLVATICUS, Colenso, Trans. N.Z. Inst., XIV., 1882, p. 278.
Hab.—Hawke Bay, N.Z.

14. ACROPHYLLA, Gray, Ent. Austr.; Westwood, *l.c.*, p. 113; Stăl., *l.c.*, p. 34.

(*Phasma*, *Diura*, *Cyphocrania*, *Ctenomorpha*, *Dairus*, *Lopaphus*, auct.)

A. TITAN, Macleay, in King's Surv. Austr., II., 454; Westwood, *l c*, 114.
Hab.—Australia.

A. BRIAREUS, Gray, Trans. Ent. Soc., I., p. 45; Westw., *l.c.*, 114.

A. CHRONUS, Gray, Syn. Phas., p. 39; Ent. Austr., I., pl. 50, f. 2.; Westw., *l.c.*
Hab.—Australia.

A. JAPETUS, Gray, Syn. Phas., p. 41; Ent. Austr., I., pl. 50, f. 1; Westwood, Cat. Phas., p. 114.
Hab.—Melville Island (N. Australia).

A. OSIRIS, Gray, Trans. Ent. Soc., I., p. 46, Syn. Phas., p. 40 (= *spinicollis*, Gray); Westwood, *l.c.*, p. 115.
Hab.—North Australia.

A. ACHERON, Gray, *l.c.*, p. 46, 40; Westwood, *l.c.*, 115.
Hab.—N. Australia.

A. MACLEAYI, Gray, Syn. Phas., p. 41; Westwood, *l.c.*, 115.
Hab.—Australia.

A. TESSELATA, Gray, *l.c.*, p. 44; Westwood, *l.c.*, 115.
Hab.—Queensland.

A. SALMACIS, Westwood, *l.c.*, p. 116, pl. 37, f. 2.
Hab.—Northern Australia.

A. VIOLASCENS, Leach, Zool. Mix., I., p. 9; Gray, Syn. Phas., p. 40; Ent. Austr., pl. 6., f. 1; pl. 7, f. 1 (*roseipennis*); Westwood, *l.c.*
Hab.—Queensland (Australia).

A. MACROTEGMA, Tepper (*Lopaphus macrotegmus*, Tepper), Trans. Roy. S.A., IX., 1886, p. 112, pl. vi.
Hab.—South Australia.

A. TASMANIENSIS, Lea, separate print, 1902.
Hab.—Tasmania.

15. ACANTHODYTA, Sharp, Willey's Zool. Results, 1898.

A. SPINIVENTRIS, Sharp, *l.c.*, p. 85.
Hab.—Lifu, Fiji Islands.

16. CTENOMORPHA (G. R. Gray), Stăl., Rev. Orth., p. 35.

Ct. NIGROVARIA, Stăl, *l.c.*, III., p. 83.
Hab.—Cape York, Queensland.

Ct. ALBOPUNCTATUM, Kirby, Trans. Linn. Soc. Lond., VI., p. 472, pl. 39.
Hab.—Queensland.

17. CYPHOCRANIA, Serville, Enc. M. X., p. 445. Stăl, *l.c.*, p. 35; Westwood, Cat. Orth., p. 106 (*Eurycnema*).

C. REINWARDTII, DeHaan, Orient. Orth., p. 130, pl. 10, f. 1 (male); Westwood, *l.c.*, p. 107.
Hab.—New Guinea.

C. GOLIATH, Gray, Trans. Ent. Soc., I., p. 45; Syn. Phas., p. 39; *C. versirubra*, Serv., Orth., p. 235; Westw., *l.c.*, 107.
Hab.—Java; Timor; N. Guinea; N. Australia; Queensland.

C. PASIMACHUS, Westwood, *l.c.*, p. 109, pl. 9, f. 5 (female).
Hab.—Australia.

C. HERCULANEA, Charpentier, Orth. pl. i. (1841), female; *C. versifasciata*, Serv., male (?), H. N. Orth., p. 235; *Eur. aestuans*, Karsch., Ent. Nachr., XXIV., p. 365; *C. Hanitschi*, Sharp, Willey's Zool. Res., p. 89 (1898); Brunn., Mitth. Mus. Hamb., XV., p. 4.
Hab.—Java; North Australia.

18. OPHICRANIA, Kaup, Berl. Ent. Zeitschrift, 1871.

O. STRIATICOLLIS, Kaup, *l.c.*, p. 38.
Hab.—Australia.

19. ANCHIALE, Sharp, Willey's Zool. Res., 1898.

(Cyphocrania maculata, auct., pars.)

A. CONFUSA, Sharp., *l.c.*, p. 80; Westwood, Cat. Orth., p. 111 (nov. nom. pro *C. maculata*, West., pars.).
Hab.—Amboyna; Sandwich Islands.

A. STOLLII, Sharp, *l.c.*, p. 89 *(C. maculata*, auct. p.).
Hab.—Lifu, Fiji Islands.

20.—CLEMACANTHA, Rainbow, Rec. Austr. Mus., III., 1897.

C. REGALE, Rainbow, *l.c.*, p. 34, pl. 9 (possibly referable to *Cyphocrania herculanea*, Sharp).
Hab.—New South Wales; Queensland.

21. VETILIA, Stăl, Rev. Orth., III. (*Cyphocrania*, p.); Stăl., *l.c.*, p. 36; Westwood, *l.c.*

V. ENCELADUS, Westwood, *l.c.*, p. 108, pl. 39, f. 1, 2; Stăl, *l.c.*, p. 84.
Hab.—Australia.

22. DIURA, Gray, *l.c.*; Stăl, *l.c.*, p. 37.

D. VIRGINEA, Stăl, *l.c.*, p. 84 (male). Near *D. violascens.*
Hab.—Cape York, Queensland (N. Australia).

23. TROPIDODERUS, Gray, Syn. Phas., p. 31; Westwood, *l.c.*, p. 165; Stăl, p. 38.

(Diura, Triyonoderus.)

T. CHILDRENI, Gray (female), *T. typhœus*, Gray (male), Ent. Austr., I., p. 26, pl. 3, f. 1; pl. 6, f. 2; Syn. Phas., pp. 31, 40; Westwood, *l.c.*, p. 165.
Hab.—N.E. Australia.

T. IODOMUS, McCoy, Prod. Zool. Vict., pl. 69, 70, f. 2, 3.
Hab.—Victoria.

T. RHODOMUS, McCoy, *l.c.*, fig. 1.
Hab.—South Australia; Victoria.

T. DECIPIENS, Rainbow, Rec. Austr. Mus., III.
Hab.—New South Wales.

24. LYSICLES, Stăl, Compt. Rend. Belg., XX., 1876.

L. HIPPOLYTUS, Stăl, *l.c.*, Esp. nouv. Phas., p. 65.
Hab.—Queensland.

25. PODACANTHUS, Gray, Ent. Austr.; Syn. Phasm.; Westwood, *l.c.*, 116; Stăl, *l.c.*, p. 38.

P. TYPHON, Gray, *l.c.*, p. 32, pl. 2, f. 1; *P. unicolor*, Charp., Orth., pl. 56; Westwood, *l.c.*, p. 117.
Hab.—New South Wales; Australia.

P. VIRIDIROSEUS (Curt., M.S.), Gray, *l.c.*, p. 43; Westwood, *l.c*, 117.
Hab.—Queensland; S. Australia.

P. WILKINSONI, Macleay, Proc. Linn. Soc. N.S.W., VI., pp. 536, 1882.
Hab.—New South Wales.

26. VASILISSA, Kirby, Trans. Linn. Soc. Lond., VI., p.

V. WALKERI, Kirby, *l.c.*, p. 489.

27. GIGANTOPHASMA, Sharp, Willey's Zool. Res., 1898.

G. BICOLOR, Sharp, *l.c.*, p. 87, pl. 7, f. 6.
Hab.– Lifu, Fiji Islands.

G. PALLIPES, Sharp, *l.c.*, p. 88, pl. 7, f. 5.
Hab.—Lifu, Fiji Islands.

28. EXTATOSOMA, Gray, Syn. Phas.; Ent. Austr.; Westwood, Cat. Orth., p. 170; Stăl, Rev. Orth. III., p. 38.

E. TIARATUM, Macleay, King's Surv. Austr. App. II., p. 455, pl. B, f. 3, 4; Gray, *l.c.*, p. 29; I., pl. 8, f. 1, 2; Westwood, *l.c.*, p. 170.
Hab.—N.S. Wales (Australia); New Guinea; Tasmania.

E. BUFONIUM, Westwood, Thes. ent. Oxon., 1874, p. 174, pl. 32, f. 2.
Hab.—Australia.

29. GRÆFFEA, Brunn.; Stăl, *l.c.*, p. 40 (*Lopaphus*, pars.; *Anophelepis*, pars.)

G. COCCOPHAGA (Gray), Westwood, *l.c.*, p. 99; *A. fulvescens*, Sauss., Mel. Orth. II., p. 117, pl. 2, f. 3, 4, 1869.
Hab.—Navigator Islands; Tonga; Fiji.

G. LIFUENSIS, Sharp, Willey's Zool. Res., 1898, p. 86, pl. 7, f. 21.
Hab.—Lifu, Fiji Islands.

30. NECROSCIA, Serville, H.N., Orth., p. 250; Westwood, *l.c.*, p. 128; *l.c.*, p. 41.

N. ARUANA, Westw., *l.c.*, p. 134, pl. 39, f. 4.
Hab.—Aru Islands (N. Guinea).

N. CARTERUS, Westw., *l.c.*, p. 138, pl. 15, f. 5.
Hab.—Australia.

N. SARPEDON, Westw., *l.c.*, p. 138, pl. 32, f. 5; pl. 16, f. 1.
Hab.—Northern Australia.

N. CURTIPES, Westwood, Cat. Orth., p. 143.
Hab.—Prince of Wales Island (N. Guinea).

N. ANNULIPES (Curt. MS.), Gray, Syn. Phas., p. 37 (*Platycrania*); Westw., *l.c.*, p. 150.
Hab.—India, &c.; Australia.

N. PAPUANA, Branscik, Jahrb. nat. wiss. Ver., Trencs., XXXI., pl. 2, fig. 9.
Hab.—New Guinea.

N. DISTINCTA, Branscik, *l.c.*
Hab.—New Guinea.

31. MEGACRANIA, Kaup, Berl. Ent. Zeitschr., XI.
(*Platycrania*, Westw.).

M. PHELAUS, Westw., Cat. Orth., p. 113, pl. 27, f. 5.
New genus for this species as a type.
Hab.—Fiji Islands.

32. LOPAPHUS, Westwood, *l.c.*, p. 99.
Orxines, Stăl, Rev. Orth. III.. p. 43.

L. GORGUS, Westwood, *l.c.*, p. 102, pl. 11, f. 4.
Hab.—New South Wales.

33. ANOPHELEPIS, Westwood, *l.c.*, p. 68.
Græffea (Brunn.), Stăl. (pars.), p. 40, 84.

A. TELEPHORUS, Westw., *l.c.*, p. 69, pl. 8, f. 3, 7.
Hab.—Western Australia.

A. PERIPHANES, Westw., *l.c.*, p. 100, pl. 8, f. 2.
Hab.—Australia.

A. RHIPHEUS, Westw., *l.c*, p. 100, pl. 8, f. 10.
Hab.—Western Australia.

34. CHONDROSTETHUS, Kirby, Trans. Linn. Soc. Lond., VI., p. 472 (for *Thrasyllus*, Stăl, Orth. Ins. Phil., p. 41).

CH. WOODFORDI, Kirby, *l.c.*, p. 455. pl. 39, f. 1, 2.
Hab.—Solomon Islands.

35. HERMARCHUS, Stăl, Rev. Orth. III., p. 45, 89.
(*Phibalosoma*, Westw., *l.c.*, pars.)

H. PYTHONIUS, Westwood, *l.c.*, p. 73, pl. 35, f. 3; pl. 12, f. 1.
Hab.—Fiji Islands.

36. ASPRENAS, Stăl, *l.c.*, p. 45.

A. FEMORATUS, Stăl., *l.c.*, p. 89.
Hab.—New Caledonia.

37. NEANTHES, Stăl, *l.c.*, p. 45.

N. BRUNNERI, Stăl, *l.c.*, p. 90.
Hab.—New Caledonia.
NOTE.—This genus and species is stated by Brunner (Rev. Syst. Orth., 1893, p. 83) to represent the female of the preceding.

38. KARABIDION, Montrouzier (*Eurycantha*, p.), Ann. Sc. Lyon, ser. 2, VII., p. 81; Stăl, *l.c.*, p. 46, 90.

K. AUSTRALIS, Mont., *l.c.*, p. 86; Westw., *l.c.*, p. 65, pl. 1, f. 1, 2.
Hab.—Lord Howe's Island.

39. EURYCANTHA, Boisd., Voy. Astrolabe, Zool. Ent.; Westwood Cat. Orth., p. 62: Stăl, Rev. Orth., III., p. 46.

E. HORRIDA, Boisd., *l.c.*, p. 647, pl. 10, f. 2; Westw., *l.c.*, p. 63.
Hab.—Dorei, N. Britain; Woodlark Is. (N. Guinea).

E. TYRRHAEUS, Westw., *l.c.*, p. 64, pl. 2, f. 1.
Hab.—New Hebrides; Loyalty Islands.
E. MICRANTHA, Montr., Ann. Sc. Lyon, ser. 2, VII., p. 85; Westw., *l.c.*, p. 64.
Hab.—Woodlark Island (N. Guinea).
E. SCORPIONIDES, Monr., *l.c.*, suppl., p. 85; Westw., *l.c.*, p. 64.
Hab.—Woodlark Island.
E. ROSENBERGI, Kaup, Berl. Ent. Zeitschr., XI., p. 34 (1871).
Hab.—New Guinea.
E. ECHINATA, Lucas, Bull. Soc. Ent. France, VIII., p. 163 (1878).
Hab.—New Guinea.

40. CANACHUS, Stål, *l.c.*, p. 47.

C. CROCODILUS, Stål, *l.c*, p. 90.
Hab.—New Caledonia.
C. SALAMANDRA, Stål, *l.c.*, p. 91.
Hab.—New Caledonia.

41. DIMORPHODES, Westwood, *l.c.*, p. 80.

D. PROSTASIS, Westw., *l.c.*, p. 81, pl. 34, f. 4, 5.
Hab.—Aru Islands (New Guinea).

42. HETEROPTERYX, Gray, Syn. Phas.; Westw., Cat. Orth., p. 81; Stål, Rev. Orth., III., p. 48.

H. AUSTRALIS, Kirby, Trans. Linn. Soc. Lond., VI., p. 472.
Hab.—Australia.

43. ACANTHODERUS, G.R. Gray, Syn. Phas.; Westwood, Cat. Orth., p. 48; Stål, Rev. Orth., III., p. 49.

(*Phasma*, *Bacteria*, *Raphiderus*, *Clitarchus*, *Sect. B.*, Hutton).
A. SPINOSUS, Gray, *l.c.*, p. 14; Westw., *l.c.*, p. 48.
Hab.—Western Australia.
A. SPINIGER, White, Voy. "Er. and Terr.," p. 24; Westw., *l.c.*, p. 48; Hutton, Trans. N.Z. Inst., XXX, 1897, p 164.
Hab.—New Zealand (North Island?).
A. OCCIPITALIS, Kaup, Berl. Ent. Zeitschr., XI., 1871, p. 31.
Hab.—Celebes, New Guinea.
A. ATRO-ARTICULATUS, Colenso, Trans. N.Z. Inst., XVII., p. 154; Hutton, *ibid*, XXX, p. 164.
Hab.—New Zealand.
A. PRASINUS, Westw., *l.c.*, p. 49, pl. 3, f. 2; Hutton, *l.c.*, p. 164.
Hab.—New Zealand (North and South Island).
A. FILIFORMIS, Colenso, *l.c.*, p 153; Hutton, *l.c.*, p. 164.
Hab.—New Zealand (Hawke Bay).
A GEISOVII, Kaup, Proc. Zool. Soc. Lond., 1866, p. 578; Hutton, *l.c.*, p. 165.
Hab.—New Zealand (Great Barrier Is., Canterbury).

A. SUTERI, Hutton, *l c.*, XXXI, p. 56 (1898).
Hab.—New Zealand (Wanganui, N. Island).
A. FASCIATUS, Hutton, *l.c.*, p. 58.
Hab.—Great Barrier Is., N. Zealand.

44. PYLÆMENES, Stăl., Rev. Orth., III., p. 51.

(*Acanthoderus*, West., pars.)
P. CORONATUS, DeHaan, Orth. Orient., p. 134, pl. 14, f. 4, 5; Westwood, Cat. Orth., p. 51; Stăl., *l.c*, p. 93.
Hab.—Amboyna, Ceram, Australia.

45. METRIOTES, Westwood, *l.c.*, p. 158; Stăl, *l.c.*, p. 60.

(*Platycrania*, Gray, pars.)
M. AGATHOCLES, Stăl, *l.c.*, p. 100.
Hab.—(?) Australia.

46. PRISOPUS, Stăl, *l.c.*, p. 60.

(*Xeroderus*, Gray; Westwood, *l.c.*, 102)
P. KIRBYI, Gray, Syn. Phas., p. 32; Westw., *l.c.*, pl. 31, f. 6, 7.
Hab.—Australia.

47. LEOSTHENES, Stăl, *l.c.*, p. 60.

L. AQUATILIS, Stăl, *l.c*, p. 102.
Hab.—New Caledonia.

48. BACILLUS, Latreille; Westw., *l.c.*, p. 3; Stăl, *l.c.*, 61.

B. BEECHEYI, Gray, Syn. Phas., p. 21; Burmeister, Handb, II. p. 562; Westwood, *l.c*, p. 12.
Hab.—Sandwich Islands (Hawaii).
B. BRUNNEUS, *l.c.*; Ent. Austr., pl. 7, f. 3.
Hab.—Western Australia.
B. AUSTRALIS, Charp., Orth. descr., p. 57; Westw., *l c.*, p 12.
Hab.—Australia
B. DOLOMEDES, Westw., Cat. Orth. Ins., p. 13, pl. 5, f. 4.
Hab.—Australia.
B. PERISTHENES, Westw., *l.c.*, p. 13, pl. 7, f. 1; pl. 8, f. 2.
Hab.—Australia.
B. PERIDROMES, Westw, *l.c.*, p. 13, pl. 8, f. 2*b*, 2*c*.
Hab.—Australia.
B. MINIMUS, Colenso, Trans. N.Z. Institute, XVII., p. 185.
Hab.—(?) New Zealand.

49. CACOMORPHA, Sharp, Willey's Zool. Res., 1898.

C. ABERRANS, Sharp, *l c.*, p. 91, pl. 8, f. 12.
Hab.—Lifu, Fiji Islands.

50. PHYLLIUM, Illiger, &c ; Westwood, *l.c.*, p. 171; Stål, *l.c.*, p. 104.

(*Gryllus, Mantis, Phasma, Pteropus.*)

Ph. siccifolium, Linn., &c., Cuvier, Reg. An., pl. 79; Westwood, *l c.*, p. 172.

Hab.—India, Java, Timor, N. Guinea.

Ph. geryon, Gray, in Zoologist, 1843, I., 118; DeHaan, Orth. Orient., pl. 15, f. 7.

Hab.—Philippine Is.; (?) New Caledonia (Mus Adel.).

51. CHITONISCUS, Stål, *l.c.*, p. 62.

(*Phyllium*, Westw., p.)

Ch lobiventris, Blanch., in d'Urville, Zool. Voy. Pole Sud, IV., p. 359, pl. 50, f. 9; Westw., *l c*, p. 174, pl. 39, f. 5.

Hab.—Levuka, Ovalau, Fiji Islands.

Ch feejeeanus, Sharp, Willey's Zool. Results, 1898, p. 87, pl 8, f. 14.

Hab.—Fiji Islands.

ALPHABETICAL INDEX OF GENERA.

	No.		No.
Acanthoderes	43	Græffea	29
Acanthodyta	15	Hermarchus	35
Acrophylla	14	Heteropteryx	42
Anchiale	19	Hyrtacus	4
Anophelepis	33	Karabidion	38
Argosarchus	13	Leosthenes	47
Asprenas	36	Lonchodes	2
Bacillus	48	Lopaphus (*Orxines*)	32
Bacteria	10	Lysicles	24
Bactridium	11	Megacrania	31
Brachyrtacus	5	Metriotes	45
Cacomorpha	49	Myronides	1
Canachus	40	Neanthes	37
Candovia	7	Necroscia	30
Chitoniscus	51	Ophicrania	18
Chondrostethus	34	Pachymorpha	6
Clemacantha	20	Phibalosoma	9
Clitarchus	12	Phyllium	50
Ctenomorpha	16	Podacanthus	25
Cyphocrania	17	Prisopus	46
Dimorphodes	41	Promachus	8
Diura	22	Pylæmenes	44
Dixippus	3	Tropidoderus	23
Eurycantha	39	Vasilissa	26
Extatosoma	28	Vetilia	21
Gigantophasma	27		

Further Notes on Australian Coleoptera, with Descriptions of New Genera and Species.

By the Rev. T. Blackburn, B.A.

[Read October 21, 1902.]

XXXI.

STAPHYLINIDÆ.

LEUCOCRASPEDUM.

L. lugens, Blackb. In describing this species (supra, p. 18) I accidentally omitted to state that I met with it in N.S. Wales, on the Blue Mountains. Mr. Lea reports it from Tasmania.

SILPHIDÆ.

CLAMBUS.

C. Simsoni, sp. nov. Brevis; sat latus; nitidus; setis brevibus subtilibus aureis sparsius vestitus; antice lævis sed elytris pone medium sat fortiter minus crebre punctulatis; supra rufo-brunneus, elytris versus margines infuscatis; subtus, capite prothorace et coxis posticis testaceis; antennis palpis pedibusque testaceis; antennarum articulis 2° quam 3^us^ fere duplo longiori, 3° 4° que sat elongatis inter se sat æqualibus, 5°—7° brevibus, 7° quam 6^us^ sat latiori, 8° magno vix transverso quam præcedentes 3 conjuncti vix breviori, 9° quam 8^us^ vix breviori subangustiori; elytrorum stria subsuturali nulla. Long., $\frac{1}{2}$ l.

Smaller than the European *C. armadillo*, DeG., and less narrowed behind, the colour very different, and the puncturation of the hinder part of the elytra very evidently stronger. This genus has not hitherto been recorded as Australian.

Tasmania; sent to me by Mr. A. Simson.

C. Tasmani, sp. nov. Minus brevis, postice angustatus; nitidus; setis elongatis fulvis sparsim vestitus; vix manifeste punctulatus; rufo-brunneus, elytrorum disco infuscato; pedibus testaceis; elytrorum stria subsuturali postice sat profunda. Long., $\frac{7}{10}$ l.

I am not able to examine the antennæ of this species, of which I have only a single specimen. It is however very distinct from all the other Australasian *Clambi* known to me by the very long and very sparse fine setæ of its upper surface. In build it resembles *C. armadillo*, but it is a trifle larger and especially broader.

The puncturation of its upper surface is scarcely traceable, though under a microscope each seta is seen to spring from a small puncture.

Tasmania.

C. tierensis, sp. nov. Minus brevis, postice angustatus; nitidus; supra lævis; niger, antennis (clava infuscata excepta) palpis pedibusque testaceo-brunneis, marginibus lateralibus anguste rufescentibus; antennarum articulis 2° quam 3^us^ haud multo longiori, 4° 5° que inter se sat æqualibus quam 3^us^ manifeste brevioribus, 6° brevi, 7° sat majori transverso, 8° quam 7^us^ multo majori (quam præcedentes 2 conjuncti vix longiori) sat fortiter transverso, 9° subquadrato quam 8^us^ vix breviori manifeste angustiori. Long., $\frac{7}{10}$ l.

Easily distinguished from the preceding two species by its dark colour, non-punctulate upper surface, and absence of pubescence.

Tasmania (The Tier, also sent by Mr. A. Simson).

PHALACRIDÆ.

LITOCRUS.

L. plagiatus, sp. nov. Ovalis; nitidus; supra niger, capite antice pronoti marginibus et in elytris macula magna communi rufis; subtus cum antennis palpis pedibusque testaceo-brunneis; antennarum articulis 3° quam 4^us^ dimidio longiori, 4° longiori quam latiori, 5° 4° æquali, 6° 7° que inter se æqualibus quam 5^us^ sat brevioribus, 8° 7° paullo longiori haud transverso, 9° quam 8^us^ multo majori leviter transverso, 10° quam 9^us^ breviori fortiter transverso, 11° quam 9^us^ sat longiori; capite pronotoque subtilissime confertim punctulato, hoc latera versus puncturis paullo majoribus nonnullis impresso; pronoto fortiter transverso, stria laterali pone marginem anticum intus curva et marginem anticum oblique attingenti; elytris seriatim (pro genere *Litocro* sat fortiter) punctulatis, puncturis antice obsoletis, interstitiis crebrius subtilissime (sed plane perspicue) punctulatis, alternis sparsim seriatim puncturis majoribus (his puncturis serierum æqualibus sed inter se multo magis distantibus) impressis; tarsis posticis sat robustis, articulo basali quam 2^us^ circiter duplo longiori. Long., $1\frac{1}{2}$ l.; lat., $\frac{9}{10}$ l.

This species I confused with *L. maculatus*, Blackb., when I described that species, from which it differs in size (being constantly larger), in the very evidently larger eighth joint and club of its antennæ, and in the shape of the common red spot on its elytra (the front margin of which is triangularly concave, while in *maculatus* it is triangularly convex). A specimen from Sydney

does not seem to differ except in the larger size of the red blotch on the elytra, which however does not differ in shape. A specimen from Tamworth (N.S.W.) is quite like the Victorian example. The lateral marginal stria of the pronotum turns obliquely inward and forward at a short distance behind the front of the segment and runs across to the front margin, so as to cut off the front corner of the segment by a fine line. Colour being disregarded this species resembles *L. major*, Blackb., but differs *inter alia* by its feebler puncturation which on the elytra is obsolete on the front three-quarters of their length.

Victoria and N.S. Wales.

L. lautus, sp. nov. Ovalis; nitidus; supra piceus vel rufo-piceus, capite antice prothoracis marginibus elytrorum macula communi magna et elytrorum apicibus (late) rufis vel testaceo-brunneis; subtus cum antennis palpis pedibusque testaceo-brunneis; cetera fere ut præcedentis (*L. plagiati*) sed ex puncturis elytrorum interstitiorum minoribus quam *L. plagiati* multo minus parvis sicut majores (seriatæ) vix perspicue apparent. Long., $1\frac{1}{2}$ l.; lat., $\frac{9}{10}$ l.

The markings on the elytra (which are constant in the six specimens I have seen) are very different from those of any other *Litocrus* known to me. Regarding the darker as the ground colour of the elytra there is presented a large common well-defined lighter area (which looked at with the head of the insect towards the observer resembles a side view of an open umbrella) with a narrowed prolongation on and around the suture attaining the scutellum. Hence the blotch in *lautus* is triangularly produced in the middle part (only) of its front, while in *plagiatus* the front of the blotch is triangularly emarginate all across its width and in *maculatus* triangularly *produced* all across its width; moreover in *maculatus* and *plagiatus* the actual suture is linearly infuscate so that there is a slight appearance of what I have called a common blotch being two spots divided on the suture from each other, and this is not the case in *lautus*. Disregarding colour and markings *lautus* is at once separable from the other two by the difference between the finer (confused) punctures of the elytral interstices and the larger (seriate) punctures of the alternate interstices being so slight that seriation is not distinctly traceable in any of the interstices.

N.S. Wales; Tamworth (Mr. Lea).

L. sparsus, sp. nov. Ovalis; nitidus; supra niger, capite antice et pronoti marginibus rufescentibus; subtus, cum antennis palpis pedibusque testaceo-brunneus; antennis fere ut *L. plagiati*, sed articulo ultimo quam 10^{us} manifeste angustiori et quam 9^{us} parum longiori; cetera fere ut *L. plagiati*,

sed elytrorum punctularum seriebus minus subtilibus et interstitiis aliter punctulatis,—puncturis parvis sparsim inæqualiter et (in alternis interstitiis) puncturis multo majoribus seriatis insigniter impressis. Long., $1\frac{3}{5}$ l.; lat., 1 l.

Differs from the preceding two species by the absence of markings on its elytra and also by the elytral puncturation,—the systematic rows of close punctures consisting of distinctly larger punctures, the finer (confused) puncturation of the interstices being very evidently less close and less fine, and the seriate punctures of the alternate intestices being notably larger and more conspicuous. Also resembles *L. major*, Blackb., in size and colour; but that species is of wider build and less narrowed behind, the interstices of its elytra are notably more closely and evenly punctulate, the seriate punctures of its alternate interstices are considerably less conspicuous, and the eighth joint of its antennæ is much more elongate. *L. alternans*, Blackb., is smaller, of a different colour, with all the elytral puncturation (except the seriate punctures of the interstices) much finer and with the club of its antennæ very much narrower.

Victoria; Dividing Range.

L. perparvus, sp. nov. Ovalis; nitidus; minus convexus; niger, pronoto picescente, palpis antennis pedibusque rufo-testaceis; antennarum articulis 3° quam 4^{us} dimidio longiori, 4° longiori quam latiori, 5° 4° æquali, 6°—8° inter se sat æqualibus brevibus transversis, 9° sat magno vix transverso, 10° quam 9^{us} paullo breviori sat transverso, 11° quam 10^{us} 9^{us} que conjuncti paullo breviori nec angustiori; capite subtiliter confertim punctulato; prothorace fortiter transverso, supra fere ut caput punctulato sed minus crebre et puncturis multo majoribus nonnullis intermixtis, stria laterali fere ad apicem continua et breviter secundum marginem anticum producta; elytris seriatim subtiliter punctulatis (basin versus fere lævibus), interstitiis fere lævibus sed alternis puncturis distinctis inter se distantibus seriatim impressis; tarsis posticis sat robustis, articulo basali quam 2^{us} circiter duplo longiori. Long., 1 l. (vix); lat., $\frac{3}{5}$ l.

This minute *Phalacrid* seems to be rather an isolated *Litocrus*. Its undersurface of dark color together with its small size separate it superficially from most of its congeners. In the species with which it is associated by the presence of well defined seriate puncturation on its alternate elytral interstices the lateral stria of the pronotum does not nearly follow the outline of the segment but turns obliquely inward and meets the front margin considerably within the front angle, so that the front corner is cut off into the form of a triangle, but in this species it nearly reaches the front margin before bending, and

then runs along for a short distance parallel with the front margin. It is perhaps nearest to *alternans*, Blackb., from which it differs however in size and colour, also in the lateral stria of its pronotum (as described above), also in its evidently less convexity (viewed from the side), also in the absence of puncturation on the elytral interstices (except the seriate puncturation of the alternate interstices). Its antennæ are like those of *alternans*,—differing from those of *major* by the very much shorter eighth joint and from those of *sparsus*, *plagiatus*, &c, by the much more elongate ninth joint and the much less dilatation of the club as a whole. Its small size, dark colour, and obsolete elytral puncturation render it very distinct from the Tasmanian *Litocrus* that I believe to be *brunneus*, Er.

Victoria (Dividing Range).

L. obscuricollis, sp. nov. Ovalis; sat brevis; nitidus; rufo-testaceus, capite pronoto (hoc ad latera, illo antice, dilutioribus) et in elytrorum disco postico umbris indeterminatis nigro-piceis; antennarum articulis 3° quam 4^us^ duplo longiori, 4°—7° inter se sat æqualibus, 8° breviori transverso, 9° 10° que multo majoribus quam latiori sublongioribus, 11° quam præcedentes 2 conjuncti parum breviori; capite pronotoque lævibus; hoc fortiter transverso, stria ut præcedentis (*L. perparvi*); elytrorum sculptura vix manifesta (pone medium paullo magis perspicua), sub microscopio subtilissime striatis et in interstitiis sparsim subtilissime (alternis seriatim magis perspicue) punctulatis; tarsis posticis quam præcedentis minus robustis, articulo basali quam 2^us^ vix duplo longiori. Long., 1 l.; lat., $\frac{7}{10}$ l.

In colouring extremely like *Parasemus victoriensis*, Blackb., but widely different structurally (*e.g.* by its much more slender hind tarsi, the basal joint of which is much longer, and by its metasternum much longer and narrower between the intermediate coxæ). From its described congeners the proportional length of its antennal joints (especially the sixth not transverse) readily distinguish it. It is perhaps generically distinct from *Litocrus*, but the uncertainty of M. Guillebeau's *Phalacrid* genera and especially the doubt mentioned by him (Ann. Soc. Ent. Fr. 1894, p. 279) as to the characters of the type of *Litocrus* render it unwise for the present to form new *Phalacrid* genera. My own opinion is that M. Guillebeau is wrong in his conjecture as to the tarsal characters of *L. brunneus*, Er.; he is certainly wrong if the Tasmanian species that I take to be *L. brunneus*, Er., is really that species; but as it is certainly *possible* that my identification is incorrect I do not feel justified in definitely disputing his conjectured characters. I have already discussed this matter and defined the aggregates of characters to which it appeared to

me at present necessary to limit oneself in distributing species among the Australian *Phalacrid* genera in Tr. Roy. Soc. S.A., 1895, pp. 205, &c. It is extremely difficult to discern the sutures between the joints of the hind tarsi in this species.

N.S. Wales; Mr. Lea (Clifton).

L. baccæformis, sp. nov. Ovalis; nitidus; obscure brunneus, antennis palpis pedibuset subtus capite prothoraceque testaceo-brunneis; antennarum articulis 3° quam 4^{us} sat longiori, 4° 5° que inter se sat æqualibus haud transversis, 6°—8° latioribus transversis, 9° multo majori sat fortiter transverso ad basin modice angustato, 10° quam longiori duplo latiori, 11° quam 10^{us} sublatiori, quam præcedentes 2 conjuncti haud multo breviori; supra vix manifeste punctulatus, sed elytrorum partibus lateralibus apicalibusque (sub lente forti) subtiliter seriatim punctulatis, in partibus dorsalibus puncturis nonnullis (sub lente forti) sparsissime impressis; tarsis posticis sat robustis, articulo basali quam 2^{us} manifeste longiori. Long., $\frac{4}{5}$ l.; lat., $\frac{1}{2}$ l. (vix).

This minute *Phalacrid* has much the appearance of a small shining seed. From the other species almost devoid of puncturation it differs notably by its colour and shape. On the dorsal portions of the elytra a few moderately distinct scattered punctures are discernible under a Coddington lens, which appear to me to represent the seriate punctures of the interstices that are so conspicuous in some of the other species of the genus.

N.S. Wales (from Mr. Lea, Galston).

L. noteroides, Blackb. This species together with *pulchellus*, Blackb., and *coloratus*, Blackb., can hardly be considered genuinely congeneric with the species that I believe to be *L. brunneus*, Er., on account of *inter alia* the different sculpture of their pronotum and the greater length of the basal joint of their hind tarsi. They, however, out of all the Australian *Phalacridæ* known to me come nearest to what M. Guillebeau conjectures to be the typical form of *Litocrus*. Although I do not share his opinion, the matter is perhaps sufficiently uncertain to render it unadvisable at present to confer a new generic name on these species. I incline to regard *Litocrus* and *Micromerus* as synonyms, but even if they are not I do not think these species could confidently be referred to either of them,—certainly not to *Micromerus*.

Micromerus amabilis, Guilleb. I have still been unable to find among the many *Phalacridæ* from various parts of Australia that I have examined any specimens to which I can apply this name with any confidence. *L. tinctus*, Blackb., is no doubt very near it but differs in size. The smallest specimen that I have seen is Long., 1 l., whereas *amabilis* should be Long., 1½ mm.

L. tinctus also has an infuscation on the elytra, of which there is no mention in the description of *amabilis*.

It seems desirable, in view of the additions that have been made to the genus *Litocrus* since 1895, to furnish a revised tabulation of the characters of the Australian species (omitting *amabilis*, Guilleb.),—as follows,—

A. The lateral stria of the pronotum reaches the front margin and there ends. Basal joint of hind tarsi about three times length of second joint.
  B. Elytra without transverse sculpture.
    C. Colour entirely testaceous ... ... noteroides, *Blackb.*
    CC. Elytra dark, with well-defined light markings ... ... pulchellus, *Blackb.*
  BB. Elytra with close transverse very fine scratch-like sculpture ... ... coloratus, *Blackb.*
AA. Not combining the characters attributed to "A."
  B. Joint 8 of the antennæ notably larger than in the species under "BB," and not transverse.
    C. Joint 9 of the antennæ scarcely wider than long. Puncturation of elytral interstices strong ... . major, *Blackb.*
    CC. Joint 9 of antennæ quite strongly transverse. Puncturation of elytral interstices very fine ... ... plagiatus, *Blackb.*
  BB. Joint 8 of antennæ quite small, transverse.
    C. Elytra with the second stria as strong as the subsutural one, and quite different from the others ... ... frigidus, *Blackb.*
    CC. Elytra not as in *frigidus*.
      D. Elytra without dorsal striæ (though usually with rows of punctures).
        E. Alternate interstices of elytra (especially the first and seventh) with rows of distant punctures).
          F. The non-seriate puncturation of interstices comparatively strong.
            G. This puncturation very sparse and irregular. Colour of elytra wholly black ... ... sparsus, *Blackb.*
            GG. This puncturation closer and even. Elytra with large well-defined pale markings ... lautus, *Blackb*
          FF. The non-seriate puncturation on the elytra much finer.
            G. Under surface testaceous - red. Elytra not uniformly black.
              H. Joint 9 of antennæ strongly transverse, wide at base. Form obtuse behind... ... brunneus, *Er.*
              HH. Joint 9 of antennæ less transverse and much narrowed at base. Form more narrowed behind.
                I. Upper surface non-iridescent; elytra dark, with a large common red spot ... ... maculatus, *Blackb.*

II. Upper surface iridescent; elytra unicolorous ... alternans, *Blackb.*
GG. Under surface dark; elytra black or dark piceous (size very small) ... ... perparvus, *Blackb.*
EE. Rows of distant punctures absent from (or scarcely traceable on) the alternate interstices.
F. Elytra with clearly traceable rows of punctures between the interstices.
G. Pronotum dark; elytra dark, with well defined pale markings ... læticulus, *Blackb.*
GG. Upper surface entirely pale testaceous except a little infuscation on the elytra ... ... tinctus, *Blackb.*
F. Elytra with practically *no* seriate puncturation on the disc.
G. Highest part of outline (viewed from the side) considerably in front of middle of elytra. Upper surface not even nearly unicolorous.
H. Elytra variably variegated with well-defined black and yellowish markings ... ... consors, *Blackb.*
HH. Elytra sanguineous, usually vaguely clouded with fuscous obscuricollis, *Blackb.*
GG. Highest part of outline (viewed from the side) behind middle of elytra. Upper surface unicolorous dark brown ... ... baccæformis, *Blackb.*
DD. The sculpture of the elytra includes numerous fine striæ.
E. Joint 9 of antennæ very strongly transverse, only moderately narrowed at base.
F. Elytral striæ and interstices scarcely perceptibly (excessively finely) punctulate ... ... Palmerstoni, *Blackb.*
FF. Elytral striæ and interstices very distinctly and not excessively finely punctulate ... ... Koebelei, *Blackb.*
EE. Joint 9 of antennæ much less strongly transverse, and very much narrowed at base... ... ... Sidneyensis, *Blackb.*

PARASEMUS.

To this genus I refer (as indicated in Tr. Roy. Soc., S.A., 1895, p. 206) all the Australian *Phalacrida* presenting the following combination of characters, viz.,—mesosternum appearing (unless the prosternum be displaced from its natural position) as merely a narrow margin of the metasternal lobe, epistoma emarginate close to the eye (distinguishing it from the genus *Phalacrus*), metasternal lobe wide and short (not passing the front of the intermediate coxæ), basal joint of the hind tarsi shorter than the

second joint. I think it quite possible that the species presenting the above characters might with advantage be divided into several genera, but it would be better for such division to be made by someone having a larger collection of *Phalacridæ* from all parts of the world than I possess. Meanwhile no difficulty is likely to occur through my treating the genus in this manner if students referring to my descriptions will bear in mind the sense in which I use the name *Parasemus*. I do not think any of the species I call by the name are members of any other genus yet characterized.

P. adumbratus, sp. nov. Sat late ovalis, postice obtusus; nitidus; obscure rufo-brunneus, pronoti et elytrorum disco plus minusve infuscato; antennis sat robustis, articulis 3°—6° subcylindricis, 3° quam 4^{us} dimidio longiori, 4° 6° que inter se sat æqualibus, 5° quam 4^{us} nonnihil longiori, 7° nonnihil latiori (5° longitudine sat æquali), 8° quam 7^{us} paullo breviori sed huic latitudine sat æquali, 9° quam 8^{us} multo majori sat fortiter transverso, 10 9° sat simili sed paullo latiori, 11° turbinato quam præcedentes 2 conjuncti vix breviori vix latiori; clypeo subelongato antice sat angustato, ad apicem subtruncato; prothorace fortiter transverso, supra subtilissime crebre punctulato, puncturis nonnullis minus subtilibus impresso, stria laterali apicem haud attingenti sed intus oblique ad marginem anticum curva; elytris seriatim subtilius punctulatis (seriebus basin versus sat obsoletis), interstitiis puncturis quam serierum parum minoribus minus crebre impressis; tarsis posticis sat robustis, articulo basali quam 2^{us} multo breviori; tibiis sat latis compressis. Long., $1\frac{3}{4}$ l.; lat., 1 l.

Of described species *P. torridus*, Blackb., is that to which the present one is nearest, but *P. torridus* is very much smaller, with its hind tibiæ shorter and wider, the difference in size between the seriate and interstitial punctures of its elytra considerably more marked, &c. In the present species the spine at the apex of the metasternal episterna is very strong and sharp, the apical joint of the maxillary palpi is scarcely shorter than the preceding two together and is subcylindric, and the front and intermediate tarsi are dilated. A specimen from the Dividing Range, Victoria, scarcely differs but seems to be a little more strongly punctured on the interstices of the elytra. In my tabulation of the species of *Parasemus* (Tr. R.S., S.A., 1895, p. 214) *P. adumbratus* finds its place beside *P. lateralis*, Blackb., and *victoriensis*, Blackb., from both of which it differs *inter alia multa* by the form of its clypeus.

N.S. Wales (Mr. Lea, Galston).

P. pallidus, sp. nov. Ovalis; nitidus; rufo-testaceus, elytris pallide brunneo-testaceis; antennis ut præcedentis (*adumbrati*) conformatis; capite brevi, clypeo antice rotundato; prothorace ut præcedentis; elytris fere ut præcedentis puncturatis sed puncturis multo magis subtilibus, puncturarum seriebus nisi in disco medio vix manifestis; tibiis quam præcedentis minus late compressis; tarsis posticis minus elongatis. Long., 1 l.; lat., $\frac{2}{5}$ l.

Entirely of testaceous colour, inclining to reddish except on the elytra. The puncturation of the upper surface is very fine throughout and there is but little distinctly seriate arrangement of the punctures except on the middle part of the disc of the elytra. In general appearance it closely resembles *P. modestus*, Blackb., beside which is its place in my tabulation of the species of *Parasemus* (Tr. R.Soc., S.A., 1895, p. 214). It differs however from *modestus* by its hind tibiæ longer and less compresso-dilatate, and by the sculpture of its elytra, the seriate puncturation in *modestus* being even better defined behind the middle than on the disc and also being quite distinct on the lateral portions.

N.S. Wales.

PHALACRINUS.

P. compressus, sp. nov. Nitidus; subcircularis; antrorsum visus valde convexus (subcompressus); a latere visus modice convexus; nigropiceus, capite prothorace elytrorum lateribus pedibusque rufescentibus; antennarum articulo 9° longiori quam latiori quam 10^{us} manifeste longiori, 11° 9° longitudine æquali; capite prothoraceque fere lævibus; scutello fortiter transverso; elytris subtiliter sat æqualiter striatis, striis dorsalibus vix manifeste (lateralibus subtiliter perspicue) punctulatis, interstitiis subtilissime vix manifeste punctulatis. Long., $1\frac{1}{5}$ l.; lat., 1 l.

Resembles in colouring the typical form of *P. notabilis*, Blackb., but is of much more circular form. Looked at from in front the sides are much less vertical. The apical joint of the antennæ is much shorter in comparison with the ninth joint. The lateral striæ of the elytra are very much finer and very much more finely punctulate. Probably the colouring is variable. Viewed from the side there is an evident appearance of the apex of the elytra being sub-spiniform, which is caused, however, merely by the somewhat expanded form of the extero-apical portion.

N.S.W. (Blue Mountains).

P. umbratus, sp. nov. Nitidus; modice latus; obovatus, postice minus acuminatus; antrorsum visus valde convexus; a latere visus modice convexus; testaceo-brunneus, elytris plus minusve fusco-umbratis; antennarum articulo 9° 10°

longitudine sat æquali quam 11[us] sat breviori; capite prothoraceque lævibus; scutello fortiter transverso; elytris subtiliter sat æqaliter striatis, striis vix perspicue punctulatis, interstitiis fere lævibus. Long., 1 l.; lat., $\frac{3}{5}$ l.

The scarcely visible puncturation of the lateral striæ of its elytra separates this species from all its previously described congeners except *obtusus*, Blackb., from which latter it differs *inter alia* by its very much greater convexity and the ninth joint of its antennæ notably shorter as compared with the tenth. Mr. Lea has also forwarded a *Phalacrinus* from W. Australia which is extremely close to *P. umbratus* but apparently distinct, as the apical joint of its antennæ is considerably more elongate. It is, however, not in fit condition for description, its elytra being open and the wings exposed, so that its shape cannot be determined.

N.S Wales (Dalmorton, Mr. Lea).

P. comis, Blackb. Since describing this species I have met with examples both in Victoria and Tasmania considerably larger than the type, the largest Long., $1\frac{1}{2}$ l.

P. navicularis, sp. nov. Nitidus; modice, latus; postice fortiter acuminatus; antrorsum visus modice convexus; a latere visus subplanatus; testaceo-brunneus, elytris piceo-umbratis; antennarum articulo 9° fere transverso quam 10[us] vix longiori; 10° transverso; 11° quam 9° fere duplo longiori; capite prothoraceque lævibus; scutello fortiter transverso; elytris subtiliter striatis, striis vix perspicue punctulatis; interstitiis subtilissime punctulatis. Long., $1\frac{1}{5}$ l.; lat., $\frac{4}{5}$ l.

The elytra of the unique type of this species are almost wholly piceous, a common somewhat diamond-shaped ill-defined testaceous spot being placed behind the suture, and the disc of the prothorax also is infuscate. Probably however the infuscation varies. In shape the species resembles *australis*, Blackb., but is a little wider and differs *inter alia* by the absence of distinct punctures in its elytral striæ, and by the apical joints of its antennæ, the ninth joint in *australis* being evidently longer than wide, evidently longer than the tenth (which however is scarcely transverse), and scarcely shorter than the eleventh.

Victoria (Dividing Range).

The following table shows characters by which the described species of *Phalacrinus* may be distinguished *inter se*:—

A. Lateral striæ of elytra very much more deeply impressed than in the other species ... ... notabilis, *Blackb.*

AA. Lateral striæ of elytra normal.

B. Lateral striæ of elytra very distinctly punctulate.

C. Form nearly circular,—obtuse behind.

D. Form (viewed from in front) extremely convex (compressed) ... ... compressus, *Blackb.*

DD. Form (viewed from in front) but little convex ... ... rotundus, *Blackb.*
CC. Form much more elongate,—acuminate behind.
D. Form (viewed from in front) very strongly convex, Elytral interstices very evidently punctulate ... ... comis, *Blackb.*
DD. Form (viewed from in front) feebly convex. Elytral interstices scarcely punctulate ... ... australis, *Blackb.*
BB. Elytra without any distinctly punctulate striæ.
C. Joints 9 and 10 of antennæ of equal length.
D. Form strongly acuminate behind. Head extremely wide ... ... navicularis, *Blackb.*
DD. Form much more obtuse behind. Head much narrower ... ... umbratus, *Blackb.*
CC. Joint 9 of antennæ very evidently longer than 10 ... ... obtusus, *Blackb.*

NITIDULIDÆ.

NOTOBRACHYPTERUS.

N. lutescens, sp. nov. Ovalis; breviter pubescens; minus nitidus; totus luteo-pubescens, capite prothoraceque nonnihil rufescentibus; capite æquali confertissime asperatim (quam *Brachypteri gravidi*, Illig., multo magis crebre multo magis rugulose) punctulato; prothorace quam elytra vix angustiori, fortiter transverso, antice angustato, confertim subasperatim minus fortiter (quam *B. gravidi* magis confertim magis leviter) punctulato; scutello sat magno (quam *B. gravidi*, Illig., et *Notobrachypteri australis*, Blackb., manifeste minore), ut pronotum punctulato; elytris quam prothorax fere ut 4 ad 3 longioribus, confertim sat leviter vix asperatim punctulatis; propygidii margine postico (exempli typici) leviter emarginato. Long., 1 l.; lat., $\frac{3}{5}$ l. (vix).

Among the species resembling it in size and colour this species is recognisable by the very close strong asperate puncturation of its head. The surface of its clypeus is without impressions; the puncturation of its pronotum is more lightly impressed than is usual in the genus; the hind outline of its propygidium is continuously (though lightly) emarginate all across (not angulate in the middle as in *creber*, Blackb., nor sinuate as in *australis*, Blackb.).

N.W. Australia; taken by Mr. E. Meyrick.

N. crassiusculus, sp. nov. Ovalis; breviter pubescens; sat nitidus; lurido-brunneus, capite pronoto et elytrorum partibus scutellaribus marginalibusque variabiliter infuscatis, antennis pedibus prosterno et pronoti marginibus lateralibus testaceo-brunneis; capite æquali subgrosse sub-

rugulose minus crebre (*Brachyptero gravido*, Illig. comparato) punctulato; prothorace quam elytra paullo angustiori, fortiter transverso, antice angustato, ut caput punctulato; scutello magno (fere ut *B. gravidi*) ut caput punctulato; elytris quam prothorax fere ut 3 ad 2 longioribus, quam pronotum magis leviter magis crebre (nec magis subtiliter) punctulatis; propygidii margine postico fortiter sinuato. Long., 1 l.; lat., $\frac{3}{5}$ l.

Perhaps nearest to *N. australis*, Blackb., which it resembles in its stout robust build, differing however in its darker colouring (especially on the under surface) and the notably coarser puncturation of its upper surface.

Tasmania; also Victoria (Dividing Range).

N. (*Brachypterus*) *testaceus*, Bohem. The specimen referred to by me in a former memoir (Tr. R.S., S.A., 1892, p. 28) as possibly this species is that which I have now described as *N. lutescens*. Unfortunately Bohemann mentions few characters of value to distinguish *testaceus* from its subsequently described congeners, but if he had had *N. pubescens* before him I think he would certainly have called its pronotum "creberrime" rather than "sat crebre" punctulatum; moreover the extreme remoteness *inter se* of the places of capture renders it unlikely that the two species are identical. M. Grouvelle has sent me a specimen of *N. bifoveatus*, Blackb., as *testaceus*; it is from Adelaide (the known habitat of *bifoveatus*) and has the two foveæ on the head extremely distinct. Bohemann describes the head of *testaceus* somewhat fully but does not mention any foveæ. I suspect that there is a *Notobrachypterus* of testaceous colour found near Sydney (distinct from both *bifoveatus* and *lutescens*) which I have not seen.

N.? (*Brachypterus*) *metallicus*, Reitt I have not seen any specimen to which this name can be referred.

N. pauxillus, sp. nov. Ovalis; breviter pubescens; sat nitidus; obscure brunneus, antennis pedibusque testaceis; capite antice transversim arcuatim leviter impresso, sparsius minus fortiter punctulato; prothorace quam elytra vix angustiori, fortiter transverso, antice minus angustato, fere ut caput (sed disco postice magis subtiliter magis sparsim) punctulato; scutello minore, antice sparsius subtilius punctulato, postice lævi; elytris quam prothorax fere ut 3 ad 2 longioribus, sat crebre leviter nec subtiliter (quam *B. gravidi*, Illig. multo magis leviter minus crebre, fere ut *N. bifoveati*, Blackb., sed magis leviter) punctulatis. Long., $\frac{4}{5}$ l.; lat., $\frac{2}{5}$ l.

The comparatively small scutellum with its hinder part smooth and the punctures of its front part sparse and somewhat fine distinguishes this species from most of its allies. *N. lilliputanus*

and *lutescens* resemble it in this respect, but have their puncturation throughout (including that of the scutellum) very much finer still. In the present species the punctures of the scutellum are scarcely so fine as in the European *B. gravidus* and very much less close. This is the insect that in a former paper (Tr. R.S., S.A., 1892, p. 28) I called a var. of *N. nitidiusculus*. I now find that besides the notable colour differences its head is less even, and less closely punctulate, and that its general puncturation is less strongly impressed.

W. Australia; taken by Mr. Meyrick.

The species of *Notobrachypterus* are now sufficiently numerous to call for a tabular statement of their distinctive characters, as follows:—

A. Pronotum very distinctly (in no instance very finely) punctulate.	
B. Hindmargin of propygidium strongly and angularly produced in the middle ...	creber, *Blackb.*
BB. Hindmargin of propygidium at most sinuate.	
C. Upper surface black (puncturation of head a little closer than in *australis*) ...	nitidiusculus, *Blackb.*
CC. Upper surface brown or testaceous.	
D. Puncturation of head fine and close (about as in the European *Brachypterus gravidus*, Illig. but more asperate ...	australis, *Blackb.*
DD. Puncturation of head very much closer, quite confluent	lutescens, *Blackb.*
DDD. Puncturation of head very distinctly less close than in *australis*.	
E. Pronotum closely punctulate throughout, continuously with scutellum.	
F. Colour of body dark brown above and beneath; elytra more coarsely and closely punctulate	crassiusculus, *Blackb.*
FF. Colour of body testaceous or rufo-testaceous above and beneath; elytra less coarsely and closely punctulate	bifoveatus, *Blackb.*
EE. Pronotum about base and front of scutellum quite sparsely punctulate; scutellum lævigate behind ...	(? testaceus, *Bohem.*) pauxillus, *Blackb.*
AA. Pronotum very finely (scarcely distinctly) punctulate	lilliputanus, *Blackb.*

BRACHYPEPLUS.

This genus contains a good many species that probably appear under two names in Masters' Catalogue. *B. Haagi*, Reitter, must, as I have already pointed out (Tr. R.S., S.A., 1894, p. 203) almost certainly be regarded as a synonym of *Murrayi*, Macl. I have no doubt that *B. blandus*, Murr., is a mere variety (scarcely deserving to be called even that) of *B. binotatus*, Murr. It is really difficult to determine from the descriptions what the author regarded as the difference between the two species. I

can discover nothing except that *blandus* is a little wider than *binotatus* (no doubt due to sex—the male *Brachypepli* are usually narrower than the females), has a more rufous club to its antennæ, and has more rufous colouring on its abdomen. I have before me a large number of specimens from various parts of Victoria (the locality cited for both species) among which I find slight variable differences such as Murray mentions, and including both forms, but I can see no reason whatever to separate them specifically. *B. castanipes*, Murr., the author thinks is perhaps only the Victorian form of the Tasmanian *B. planus*, Er., aud suggests that his readers may consider it a variety. The only difference he definitely specifies is that *B. castanipes* is smaller than *planus*. I have collected specimens in Victoria and Tasmania which are undoubtedly all *B. planus*, and there is no distinct closely allied species among them. They vary considerably in size. The above corrections of nomenclature reduce the number of described Australian *Brachypepli* to six (viz., *auritus*, Murr.; *basalis*, Er.; *binotatus*, Murr.; *Macleayi*, Murr.; *Murrayi*, Macl.; and *planus* Er.). I know all these species except *Macleayi*, Murr., a name that I cannot identify with any insect. Most of the characters Murray cites in his description would apply to several species, but the colouring of the elytra seems to be different from that of any other *Brachypeplus* I have seen (piceous, with a narrow basal margin of red). I conclude therefore that *Macleayi* is not before me. *B. auritus*, Murr., is so unlike the other species in general appearance and in the structure of its head that it ought I think to be formed into a new genus (not merely a subgenus, as Murray suggests) but for the present it is perhaps better to let that question stand over, more especially as I have before me several other species that differ from *B. planus*, &c., in isolated structural characters on the value of which from a generic point of view I am not prepared to give a decided opinion, not having many *Brachypepli* from other parts of the world for comparison. I will therefore on the present occasion merely describe these new species placing them provisionally in *Brachypeplus* and furnish a tabulation of the distinctive characters of the species that must now stand as *Brachypepli*. The Australian *Carpophilides* known to me I regard as all belonging to *Brachypeplus* and *Carpophilus*, which may be readily distinguished *inter se* by the form of the labrum (among other characters), that organ being in *Carpophilus* deeply emarginate in front while in *Brachypeplus* it is nearly straight or slightly rounded. It should be noted that immature examples of *Brachypepli* are somewhat common in collections, and these are usually of an uniform ferruginous colour.

B. Olliffi, sp. nov. Elongatus; subparallelus; minus latus

depressus; parum pubescens; testaceus, elytris postice infuscatis; supra confertim subtiliter (quam *B. planus*, Er., sat multo magis subtiliter) punctulatus; capite (præsertim in parte mediana) granulis insignibus minus crebre instructo; prothorace ut caput granulato, transverso, antice modice angustato emarginato, angulis anticis acutis posticis acute rectis, marginibus lateralibus ciliatis; elytris quam prothorax vix latioribus quarta parte longioribus, vix manifeste striatis, inæqualiter obtuse leviter costulatis; abdominis segmenti basali elytris tecto, ceteris apertis.

Maris segmento dorsali 5° apice truncato, 6° brevi transverso. Long., $3\frac{4}{5}$ l.; lat., 1 l.

The large size, depressed form, and abdomen with only the first dorsal segment covered by the elytra suggest a doubt whether this species might not be regarded as the type of a new genus *Brachypeplus* as characterised by Lacordaire has not more than three dorsal segments exposed, but there are Australian species (e.g., *binotatus*, Murr.) in which a portion of the second segment is exposed dorsally. In the present insect the exposed abdomen is distinctly longer than the elytra. I do not think the abdomen is artificially drawn out, but as I have only a single specimen I cannot be quite certain on the point. Apart from the characters just mentioned this species is at once distinguishable from its described Australian allies by the conspicuous little granules thinly dispersed over its head and pronotum. The outline of its prothorax is scarcely different from that of the prothorax of *B. planus*, Er., but the sides are slightly more rounded near the front.

S. Australia; Eyre's Peninsula.

B. wattsensis, sp. nov. Sat elongatus; sat parallelus; sat angustus; minus convexus; pubescens; rufo-testaceus, capite pronotoque (hujus lateribus exceptis) rufo-piceis, elytrorum sutura et parte postica tertia infuscatis vel nigricantibus; supra minus nitidus; capite pronotoque creberrime sat aspere (quam *B. basalis*, Er., fere magis crebre) punctulatis; hoc transverso, antice haud perspicue angustato vix emarginato, marginibus lateralibus ciliatis, angulis anticis obtusis posticis rectis, lateribus sat rectis; elytris quam prothorax vix latioribus tertia parte longioribus, fere ut *B. binotati*, Murr. (subtiliter striatis, interstitiis anguste lineatim prominentibus, sed his quam *B. binotati* paullo magis prominentibus); abdominis segmentis basalibus 2 elytris tectis. Long., 2 l.; lat., $\frac{3}{5}$ l.

The Australian *Brachypepli* are so little variable in colour and markings that this insect might perhaps be reliably distinguished

from its Australian congeners by its entirely testaceous abdomen in conjunction with the form of the luteous portion of its elytra which occupies the anterior portion to somewhat behind the middle, the suture however being widely but not very strongly infuscate; the hind part of the elytra for nearly a third part of its length is nearly black. Of the species having the lateral margins of the pronotum ciliate those most resembling *wattsensis* are *basalis*, Er., and *binotatus*, Murr.; from the former it differs *inter alia* by its prothorax scarcely wider at the base than in front and from the latter by the straightness of the sides of the prothorax and the considerably more crowded puncturation of the upper surface of that segment. Compared with *B. Murrayi*, Macl. (identified by Mr. Lea by comparison with the type) the pronotum is considerably more closely punctulate and less narrowed in front, &c., &c.

Victoria; Watts River district.

B. Cowleyi, sp. nov. Minus elongatus; modice latus; sat parallelus; minus convexus; pubescens; subnitidus; piceus, elytrorum humeris luteis (horum colore retrorsum producto sed gradatim obscurato), antennis pedibusque fulvis; capite crebre (fere ut *B. basalis*, Er.), pronoto subfortiter minus crebre (quam *B. basalis* multo minus subtiliter multo minus crebre), abdomine fere ut pronotum, punctulatis; prothorace transverso, antice sat fortiter (ut *B. basalis*) angustato leviter emarginato, marginibus lateralibus ciliatis, angulis anticis obtusis posticis subacutis retrorsum inclinatis, lateribus leviter arcuatis; elytris quam prothorax vix latioribus tertia parte longioribus, abdominis segmentum 2^{um} vix omnino tegentibus, punctulato-striatis, interstitiis planatis uni-seriatim sat fortiter punctulatis. Long., $1\frac{4}{5}$ l.; lat., $\frac{3}{5}$ l.

The colouring of the elytra is not much different from that of the preceding species (*B. wattsensis*). In general appearance this species resembles *B. basalis*, Er., and *binotatus*, Murr., from both of which it is very distinct by the stronger and sparser puncturation of its pronotum and especially of the dorsal segments of its abdomen and by the uniformly flattened interstices of its elytra. The outline of its prothorax is similar to that of *B. basalis*. Compared with *B. Murrayi*, Macl., *inter alia* the abdomen is very much more strongly punctulate.

Queensland (sent from Cairns by the late Mr. Cowley).

B. Koebelei, sp. nov. Sat elongatus; minus latus; parallelus; minus convexus; pubescens; subnitidus; piceo-niger, humeris luteis, antennis pedibusque fulvis; capite pronotoque subfortiter minus crebre (ut *B. Cowleyi* pronotum), abdominis segmento 3° ut pronotum 4° magis subtiliter, punctulatis; prothorace transverso, antice sat fortiter (tu

B. basalis, Er.) angustato leviter emarginato, marginibus lateralibus ciliatis, angulis anticis obtusis posticis subacutis retrorsum inclinatis, lateribus leviter arcuatis; elytris quam prothorax haud latioribus vix tertia parte longioribus, abdominis segmentum 2^{um} nullo modo tegentibus, punctulato-striatis, interstitiis planatis uni-seriatim sat fortiter punctulatis. Long., $1\frac{3}{5}$ l.; lat., $\frac{1}{2}$ l.

The markings of the elytra consist of a small but very conspicuous red patch on each shoulder. The species is somewhat close to the preceding (*B. Cowleyi*) but is smaller and narrower and notably more parallel, and is readily distinguishable also by the very evidently less close puncturation of its head and the much finer puncturation of the dorsal surface of the fourth segment of its abdomen. Compared with *B. Murrayi*, Macl., *inter alia* the pronotum and head are considerably less closely punctulate.

North Queensland (given to me by Mr. Koebele).

B. barronensis, sp. nov. Sat elongatus; minus latus; minus convexus; pubescens; minus parallelus (abdomine a basi retrorsum angustato); castaneus, elytris postice plus minusve infuscatis; capite prothoraceque crebre minus subtiliter (haud multo aliter quam *B. plani*, Er.), abdomine minus fortiter multominus crebre, punctulatis; prothorace transverso, antice sat fortiter (ut *B. basalis*, Er.) angustato parum emarginato, marginibus lateralibus haud ciliatis, angulis anticis obtusis posticis fere rectis (nec acute) haud retrorsum inclinatis, lateribus leviter arcuatis; elytris quam prothorax (maris vix, feminæ paullo) latioribus tertia parte longioribus, abdominis segmenti 3^{i} partem basalem tegentibus, substriatis, interstitiis planatis vix prominentibus minus perspicue punctulatis.

Maris (?) abdominis segmento 5° ad apicem late rotundato-truncato, segmento 6° brevissimo; feminæ segmento 5° magis elongato ad apicem minus late rotundato. Long., $1\frac{4}{5}$ l.; lat., $\frac{2}{5}$ l.

Readily distinguishable from its previously described Australian congeners by the non-ciliate lateral margins of its pronotum and by the hind angles of that segment being (not sharply but) bluntly right angles and not directed hindwards. I think the two specimens before me are male and female but the external sexual characters in that case are very slight (as seems to be the case with most of the Australian *Brachypepli*). In the specimen that I take to be a male the fifth dorsal segment of the abdomen is shorter and blunter than in the other specimen and beyond it there is (what looks like) an extremely minute

appended segment; the dorsal surface of the abdomen is, moreover, distinctly more nitid than in the other specimen.

N. Queensland (given to me by Mr. Koebele).

B. kemblensis, sp. nov. Sat elongatus; sat latus; minus convexus; pubescens; sat parallelus; brunneus vel brunneo-testaceus, capite prothorace (lateribus exceptis) et elytrorum dimidia parte postica varie quam ceteræ partes plus minusve obscurioribus; capite crebre fortiter, prothorace fortiter minus crebre, abdomine minus crebre minus fortiter, punctulatis; prothorace transverso, antice modice angustato parum emarginato, marginibus lateralibus haud ciliatis, angulis anticis obtusis posticis rectis haud retrorsum inclinatis, lateribus leviter arcuatis; elytris quam prothorax sublatioribus circiter tertia parte longioribus (feminæ quam maris paullo longioribus), abdominis segmentum 2^{um} vix tegentibus, punctulato-striatis, interstitiis planatis vix prominentibus minus perspicue punctulatis.

Maris abdominis segento 5° ad apicem truncato, 6° bene perspicuo transverso; feminæ segmento 5° ad apicem declivi producto-rotundato. Long., $1\frac{4}{5}$ l.; lat., $\frac{7}{10}$ l. (vix).

The conspicuous characters of this species are the absence of ciliæ on the lateral margins of its pronotum and the strong puncturation of that segment, which might almost be called coarse; it is considerably more so than in any other Australian *Brachypeplus* known to me (except *auritus*, Murr, in which it is altogether of a different type). The pronotum has indication of a ongitudinal median line—more distinct in some specimens .an n others. The colour varies a little, particularly on the pronotum which is infuscate or not and on the abdomen and under surface which are of different shades of testaceous or brown.

N.S. Wales (Mount Kembla); given to me by Mr. Hamilton.

HAPTONCURA.

H. ocularis, Fairm. I have in my collection a specimen given me by Mr. Koebele taken in N. Queensland, which agrees perfectly with Fairemaire's description of this Tahitian insect. It is certainly identical with examples from the Hawaiian Islands (introduced there, no doubt) of *H. tetragonus*, Murr (a species from Ceylon). In Trans. Roy. Dublin Soc, 1885, p. 231, the probability of the identity of *H. tetragonus* with the previously described *H. ocularis* is indicated, a probability that is increased by the occurrence in Queensland of the specimen before me.

SORONIA.

S. simulans, Blackb. I have received from Queensland a specimen which seems to differ from the type of this species only

in being smaller (Long. 2½ l.) and of a very pale brown colour. It is not in very good condition, and the examination of fresh examples might show it to be a distinct species.

ÆTHINODES.

This genus is extremely close to *Idæthina* and *Lasiodactylus*; indeed I feel considerable doubt as to whether either it or *Idæthina* can be regarded as genuinely distinct from *Lasiodactylus*. It undoubtedly differs from the other two in having the inner outline of the basal portion of the claws distinctly (though not strongly) dentate. In *Idæthina* this portion is very distinct though not dentate on its inner margin (so that the claws are not in the strict sense simple); in *Lasiodactylus* it is all but non-existent. *Idæthina* is of manifestly narrower and more cylindric form than the other two. Beyond these differences I know not where to find distinctive characters. In his monograph of the *Nitidulidæ* Reitter attaches very great importance to the form of the claws as a generic character, and therefore it is not possible to annex *Æthinodes* to *Lasiodactylus* without traversing Reitter's system of classification to a very serious extent, but it certainly appears to me open to criticism.

IDÆTHINA.

I. cincta, Blackb. Since I described this species I have received through the courtesy of M. Grouvelle a specimen of *I. Deyrollei*, Reitt., and find that my species differs from the typical one, as I supposed, in the striation of the elytra which is entire in *cincta* and limited to the lateral parts in *Deyrollei*. There is not much difference, however, in the puncturation of the pronotum. The two are undoubtedly congeneric.

Remarks on this genus will be found above under *Æthinodes*.

MACROURA.

The following is a tabulation of the characters of the Australian species of this genus, so far as I know them :—

A. External margin of front tibiæ armed at the apex.
  B. The armature consists of two equal acute small teeth separated by a semicircular somewhat wide interval ... ... deceptor, *Blackb.*
  BB. The armature consists of two large unequal subcontiguous teeth ... ... bicalcaratus, *Blackb.*
  BBB. The armature consists of a feeble prominence which is more or less bifid at its apex.
    C. Pronotum excessively finely punctulate, the punctures confluent and asperate ... ... brunnescens, *Reitt.*
    CC. Pronotum notably less finely and less closely punctulate .. .. concolor, *Macl.*
AA. External margin of front tibiæ unarmed ... inermis, *Blackb.*

M. brunnescens, Reitt. I have no doubt that I have correctly identified this species, which so far as my experience goes is the only widely distributed Australian member of the genus. I have examples from Central Australia, W. Australia, and S. Australia. In one particular it does not strictly agree with the description, which calls the "head and prothorax" "*confertissime subtiliter subruguloso-punctata.*" This expression applies quite satisfactorily to the pronotum of the specimens before me, but the head is distinctly less closely, less finely, punctulate. This discrepancy does not affect my confidence in the identification, inasmuch as I find that Reitter in his descriptions of species of this genus did not (in any instance before me) distinguish between the puncturation of the head and the pronotum, whereas I can scarcely find a *Macroura* in which there is not a distinct difference between those two segments in respect of puncturation. Moreover, the difference is more marked in the males than in the females. Furthermore, Reitter's descriptions in this genus are shown to be somewhat hastily drawn up by his not (in the instances before me) referring to the armature of the extero-apical portion of the front tibiæ which is a most valuable character for distinguishing the species. I have made this note because *brunnescens* appears to be decidedly the most convenient species wherewith to compare other Australian members of the genus (as being a comparatively common and a very well marked species) and therefore it is desirable that there should be no doubt about which is the insect that I refer to under that name. It is easily recognised among the *Macrourœ* known to me by its lurid brown elytra (in contrast to the nigro-piceous general colour of the upper surface), the extremely fine and close sub-asperate puncturation of its pronotum and the extero-apical corner of its front tibiæ having a small bifid prominence. It is very variable in size.

M. nigra, Reitt. In some previous remarks on this species (T.R.S., S.A., 1891, p. 109) I gave my reasons for thinking *M. Baileyi*, Blackb., distinct from it. After examination of *Macrourœ* from various parts of Australia which were not then before me I incline to reverse my former judgment, which was based chiefly on Reitter's statement that the apex of the elytra in *M. nigra* is truncate. Reitter, however, regards the truncation of the elytra as a generic character, and qualifies it by the statement (in the diagnosis of the genus) that the apex of the elytra is rounded at the angles. His statement concerning the elytra of *M. nigra*, therefore, amounts to no more than that their form is normal and does not necessarily imply that they are more abruptly truncate than those of their congeners. Reitter also (in his notes on the species) qualifies his statement

(in his diagnosis) that the pubesence of *M. nigra* is black. The size (which I also referred to) is not a satisfactory distinction alone, and therefore, as it seems improbable that *M. nigra* is not among the species before me, I am of opinion that *M. Baileyi* is identical with Reitter's species. Unfortunately, there is still further entanglement in the synonymy of this insect, for (as noted T.R.S, S.A., 1894, p. 204, and 1895, p. 31) I received it from Mr. Lea subsequently to my description of *Baileyi* under the name *Carpophilus obscurus*, Macl. (on a supposed comparison with Macleay's type) and too hastily adopted the correction. Afterwards Mr. Masters sent it to me as *Nitidula concolor*, Macl. This caused me to look carefully into the matter, and I found that Masters' identification is correct, and that Mr. Lea must have compared it with a specimen which was not the real type of *C. obscurus*, Macl., as it does not at all agree with Macleay's description. The synonymy, therefore, appears to be as follows :

M. (*Nitidula*) *concolor*, Macl.
nigra, Reitter.
Baileyi, Blackb.
obscurus (*Carpophilus*), Blackb., T.R.S., S.A., 1894, p. 204, nec. Macl.

M. densita, Reitt. This species is said to be common to Ceylon and Australia. It seems to be a very small *Macroura* notable especially by the extremely close puncturation of its pronotum and the red colour of its front tibiæ in contrast to the colour of its other legs. I have seen nothing like it and suspect that it is erroneously quoted as Australian.

M. (*Nitidula*) *latens*, Blanch. The description of this insect is almost certainly that of a *Macroura*, but is not precise enough to identify it with any insect known to me. Any one of three or four species may with about equal probability be that on which Blanchard founded his description.

M. bicalcarata, sp. nov. Fem. Late ovalis; vix nitida; fulvo-vel cinereo-pubescens; piceo-nigra, antennis pedibusque rufo-brunneis, illarum articulo ultimo infuscato; capite creberrime minus subtiliter (quam *M. brunnescentis* magis crebre minus subtiliter), pronoto crebre subtilius (a parte antica retrorsum gradatim minus subtiliter), quam *M. brunnescentis* minus subtiliter) punctulatis; prothorace fortiter transverso, antice angustato, lateribus arcuatis, angulis posticis (superne visis) subacutis retrorsum inclinatis, a latere visis obtusis; elytris confertim inæqualiter (quam *M. brunnescentis* magis perspicue minus confertim) striatis, striis inæqualiter punctulatis, interstitiis angustis haud punctulatis; tibiis anticis extus ad apicem dentibus binis magnis armatis, his fere contiguis. Long., 2 l.; lat., $1\frac{1}{10}$ l.

Readily distinguishable from all its congeners known o me by the two teeth at the external apex of its front tibiæ. These teeth are larger than those on the tibiæ of the other *Macrourœ* known to me and are almost in contact with each other.

Queensland; Charters Towers.

M. inermis, sp. nov. Late ovalis; sat nitida; fulvo-pubescens; nigra, antennis pedibusque rufis; capite subfortiter (maris quam feminæ minus crebre), pronoto crebre subtilius (quam præcedentis, *M. bicalcaratæ*, haud multo aliter) punctulatis; prothorace fortiter transverso, antice angustato, lateribus arcuatis, angulis posticis superne visis subacutis retrorsum inclinatis, a latere visis sat rectis; elytris sat æqualiter minus confertim punctulato-striatis, interstitiis planis nitidis minus angustis subrugulosis; tibiis anticis inermibus. Long., $1\frac{1}{8}$—$1\frac{1}{2}$ l.; lat., $\frac{7}{10}$—$\frac{4}{5}$ l.

At once separated from its congeners known to me by its unarmed front tibiæ, their extero-apical angle being simply acute (scarcely prominent). The scratch-like striæ of its elytra are less numerous (there are about 20 of them on each elytron) than in any other *Macroura* known to me except *deceptor*, Blackb., and they are better defined and more evenly punctulate than in any of its congeners that I have seen.

Queensland, Cairns; given to me by Mr. Koebele.

CRYPTARCHA.

C. obscurior, sp. nov. Ovata; minus convexa; sat nitida; pubescens; ferruginea, pronoti disco et elytrorum sutura antice late infuscatis, macula indeterminata infuscata sublaterali in elytris posita; capite pronotoque crebre subfortiter punctulatis; prothorace transverso, antice angustato, lateribus arcuatis, margine antico emarginato; elytris sat æqualiter punctulato-striatis, interstitiis planis, sutura (nisi juxta apicem) haud elevatis. Long., $1\frac{1}{5}$ l.; lat., $\frac{3}{5}$ l.

Probably variable in respect of colour and markings. Allied to *C. depressa*, Grouv., from which it differs *inter alia multa* by the entire absence of any inequality on the pronotum, by the interstices of its elytra all absolutely flat, by the suture of its elytra perfectly flat (except close to the apex) and by the striæ of its elytra very much more evenly impressed (*e.g.*, the fourth stria not inclined obliquely towards the suture till quite near its apex). The only irregularity in the striation consists in the two striæ next the suture on each elytron being subobsolete and represented by little more than their punctures, the seriation of which is somewhat disturbed and runs into a single line considerably before the apex; the third stria is traceable almost to

the apex. In the unique type the basal half of the pygidium is covered by the elytra.

Victoria (Dividing Range).

MONOTOMIDÆ.

MIMEMODES.

M. Koebelei, sp. nov. Minus elongatus; minus nitidus; parce breviter albido-setosus; testaceo-brunneus, capite prothoraceque rufescentibus; capite latissimo, trans oculos valde prominentes quam prothorax magis lato, parce subtiliter punctulato, lateribus supra oculos alte reflexis; antennis sat brevibus, 10-articulatis (articulo 11° vix manifesto), clava quasi 1-articulata, articulis basali sat magno 2° globoso, 3°—9° parvis; prothorace leviter transverso, quam elytra sublatiori, antice quam postice latiori, subfortiter minus crebre (parte mediana haud punctulata excepta) punctulato, lateribus crenulatis fere rectis, angulis obtusis; scutello sat parvo, elongato-triangulari; elytris pygidium vix attingentibus, postice rotundato-truncatis, leviter striatis, striis punctulatis, interstitiis planis sat latis; tarsis 4-articulatis, articulis 1° 2° que brevibus dilatatis, 3° minutissimo, 4° quam ceteri conjuncti longiori; unguiculis inermibus. Long., 1 l.; lat., $\frac{2}{3}$ l.

This species does not seem to differ in its structural characters from the other two species of *Mimemodes* (*M. japonus*, Reitt., and *laticeps*, Macl.) in my collection, but it is of comparatively broader and shorter form than either of them, with more prominent eyes than *japonus* (the eyes of *laticeps* are very much less prominent) and is very different from both by the sides of its head very strongly reflexed (almost like crests) above the eyes.

N. Queensland; given to me by Mr. Koebele.

TROGOSITIDÆ.

LEPERINA.

L. (*Peltis*) *moniliata*, Pasc.? Oblonga; nigro-picea, labro palpis antennis pedibusque plus minusve rufescentibus, prothoracis elytrorumque marginibus lateralibus (margine summo excepto) late concinne rufis, pronoto maculis 8 elytris singulis maculis circiter 20 (maculis squamis coccineis coloratis) ornatis; supra subæqualiter sat fortiter subrugulose punctulata; prothorace sat fortiter transverso, antice fortiter emarginato, pone marginem anticum foveis 2 profundis impresso, lateribus leviter æqualiter arcuatis, angulis anticis fortiter productis posticis subrectis; elytris 4—costulatis. Long., $3\frac{1}{2}$—$4\frac{1}{2}$ l.; lat., $1\frac{2}{5}$—$1\frac{4}{5}$ l.

In a fresh specimen the scales forming the spots on the upper

surface are of a very bright scarlet colour ; those on the pronotum are a pair in the discal foveæ, a corresponding pair on the basal margin and one at each of the angles—the latter inconspicuous because placed on the red lateral margin ; they are small and of equal sizes. The spots on the elytra are of about the same size as those on the pronotum and very equal in size *inter se* ; there are about 5 spots on the lateral margin and from 3 to 5 on each of the inner three interstices. Disregarding colour and markings the species differs from *decorata*, Er., by *inter alia* the very much less strongly rounded sides of its prothorax, and from *lacera*, Pasc., by *inter alia* the sides of its prothorax considerably less rounded and without the slightest sinuosity of outline. It has no fascicles on its surface. An abraded specimen of this insect agrees so remarkably well with Pascoe's description of *Peltis moniliata* that I can hardly doubt its being specifically identical. It is decidedly a *Leperina* ; if there should be found an insect (distinct from this) which is Poscoe's *moniliata* the latter will no doubt be found to be not a *Leperina*, and in that case no harm will be done by the repetition of the name.

Victoria (Dividing Range) and Tasmania.

PELTONYXA.

P. invalida, sp. nov. Elongata ; postice leviter dilatata ; minus convexa ; vix pubescens ; testaceo-ferruginea ; capite prothoraceque rufescentibus, alutaceis et sparsissime obsoletissime puncturis impressis ; prothorace quam longiori circiter duplo latiori, antice parum angustato, lateribus leviter arcuatis minus late reflexis, angulis posticis rotundatis ; elytris minus fortiter seriatim punctulatis, interstitiis nonnullis latera versus obsolete prominulis. Long., $1\frac{2}{5}$ l.; lat., $\frac{2}{5}$ l.

Near *P. australis*, Blackb., but easily distinguishable from it by *inter alia* the less straight sides of its prothorax, and the considerably smaller and much less deeply impressed punctures of its elytra. Some of the interstices of the elytra near the lateral margin are very slightly raised (in *australis* the alternate interstices throughout are so) but so slightly that their elevation is only to be seen from some points of view. *P. pubescens*, Blackb., differs from both the above *inter alia* by its very much more plentiful pubescence ; and *P. Deyrollei*, Reitter, by its considerably greater size, also by the alternate interstices of its elytra being elevated, a character that could not be attributed even to *P. australis* without the qualifying word " scarcely ' before " elevated," also by its elytra being striate.

N.S. Wales (Blue Mountains).

COLYDIIDÆ.

DITOMA.

A large number of species have been attributed to this genus which have since had to be removed from it and formed into distinct genera. The number of these is so great that without access to a large collection of the *Colydiidæ* of the world it is impossible to deal satisfactorily with the generic apportionment of the Australian species at present standing under the name *Ditoma*. According to Lacordaire the essential characters of *Ditoma* in the "Tribe" *Synchitides* are as follows "Basal 3 joints of tarsi equal or nearly so *inter se*, tibiæ not spinous externally but armed with a small apical spine, all the tarsi four-jointed, mandibles bidentate at apex, the ventral segments all emarginate behind, head devoid of antennal sulci, club of antennæ two-jointed, sides of prothorax narrowly margined. Of the characters above mentioned that based on the form of the hindmargin of the ventral segments does not appear to me to be founded on correct observation. I have before me specimens of the European *D. crenata*, Hbst. (the type of the genus) and cannot find that its ventral segments are emarginate behind, or differ noticeably in outline from their form in allied genera. Nor do I find that authors subsequent to Lacordaire make any use of this character. In spite, therefore, of the great weight of Lacordaire's authority I think this character must be dropped. Applying the other characters assigned by Lacordaire strictly I cannot find any described Australian *Colydiid* which is a true *Ditoma* In the absence, however, of assurance that I have before me the diagnoses of all the described genera closely allied to *Ditoma* I do not feel justified in proposing new generic names for those which do not fall into any already named genus known to me, and therefore must leave them provisionally in *Ditoma*. As I have before me authentic specimens (in every case but one, the type) of all the Australian species except one that have been described as *Ditoma* I may perhaps advantageously furnish some notes on them:

D. serricollis, Pasc., is the only species of which I have not an authentic example. Its author does not enumerate its structural characters in detail but says that "as far as external characters go" it is certainly a *Ditoma*. So many genera near *Ditoma* have been established since the date (1860) of that note that it cannot now be taken for more than a statement that the insect is a *Ditoma* rather than a member of any other then known genus. It appears to me to be probably identical with *lineatocollis*, Blackb., which some years ago M. Grouvelle (a specialist on the *Colydiidæ*) informed me that he considered I had done right in acing in *Ditoma*. Its description is not sufficiently detailed to

allow of its confident identification without examination of the type but the description (so far as it goes) and locality suggest *lineatocollis*. If so, I doubt whether it can stand permanently in *Ditoma* on account of the very decidedly expanded and denticulate lateral margins of its pronotum the extreme edge of which is not bounded (as it is in *Ditoma crenata*) by a raised edging. I do not however know of any other described genus in which it can be placed.

D. lineatocollis, Blackb. It is not improbable that this name will have to sink as a synonym of *serricollis*, Pasc. (discussed above).

D. costata, Macl., and *torrida*, Blackb. These must be transferred to the genus *Phormesa*.

D. pulchra, Blackb., *obscura*, Blackb., and *nivicola*, Blackb., appear to be congeneric with the New Zealand species *D. sellata*, Shp., attributed by its author doubtfully to *Ditoma*. Dr. Sharp, however, thought it might be congeneric with species for which Broun had, without giving a diagnosis of the generic characters, proposed the name *Ablabus*. I have examined the descriptions of the species in question and think Dr. Sharp's conjecture probably correct, and am disposed to refer my three species named above to *Ablabus*. They differ from *Ditoma* in having the lateral margins of their head and pronotum strongly expanded and indented, by the presence of antennal sulci, and by their much more strongly granulate eyes. They are very near *Sparactus*, but the sides of their head and pronotum are much more strongly dilated and indented, and the club of their antennæ has only two joints. From *Phormesa* they differ by the indented margins of their head and pronotum, their non-carinate elytra, the longer sulci for the reception of their antennæ, and their much smaller eyes. M. Grouvelle has suggested doubtfully *Endophlæus* for them, but the apex of their tibiæ undoubtedly has a small spine, which is inconsistent with *Endophlæus*.

D. perforata, Blackb. This species cannot stand permanently in *Ditoma*, owing *inter alia* to the form of the antennal club, the first joint of which is very much larger than the other—the latter being little more than rudimentary. M. Grouvelle has suggested to me that the insect might be placed in *Synchita*, which also has the apical joint of its antennæ rudimentary. (According to Lacordaire the 11th joint is altogether wanting, but to me it seems in *S. juglandis*, Fab.—the type of the genus I believe — to be distinctly visible, though very small). *D. perforata* would, I think, be as aberrant in *Synchita* as in *Ditoma*, owing to the sides of its prothorax being strongly dentate and its eyes more coarsely granulate and much more

prominent. It differs much also in facies from *Synchita* (at least from *S. juglandis*) being much narrower and more elongate, with longer and more slender antennæ, the club of which is notably smaller and especially less globular.*

D. hilaris, Blackb., though very different from *lineatocollis*, Blackb. (vide supra) as a species, does not seem to differ from it in respect of any character likely to be generic.

D. parva, Blackb. This species cannot stand in *Ditoma*, nor can it be placed in any other hitherto described genus known to me. It differs from *Ditoma* by the eleventh joint of its antennæ, much narrower (and a little shorter) than the tenth, by the presence of well defined antennal sulci which are so long as to curve outward behind the eyes, by the head furnished with lobe-like processes behind the eyes which project laterally beyond the outline of the eyes, and by its pronotum having a comparatively wide and distinctly serrate flattened lateral border.

SPARACTUS.

I believe this genus to be identical with *Illestus*. Its type is *Ditoma interrupta*, Er., the correctness of my identification with which of a small *Colydiid* (common in Tasmania and Southern Australia) is not, I think, open to the slightest uncertainty. In the subsequent diagnosis of the genus *Sparactus* (formed for this insect), the tibiæ are not mentioned, but in Erichson's tabulation of *Colydiid* genera the place given is among those having unarmed tibiæ. This is a mistake as its tibiæ have a very short apical spine,—which however might very easily be overlooked as from most points of view it is hidden. In all other respects the *Colydiid* mentioned above agrees perfectly with the generic diagnosis and with the description of the species. It also agrees with the diagnosis of *Illestus*, with Pascoe's figure of *Illestus* (Journ. Ent. II., pl. iii., fig. 4), and with Reitter's description of *Illestus Grouvellei* (M. T. Münch. Ent. Ver. 1877, p. 133). The only apparent discrepancy in the descriptions of *D. interrupta* and *I. Grouvellei* is in the statement that the inner elytral costa of *D. interrupta* is interrupted whereas in his description of *Grouvellei* Reitter implies that the second costa only is interrupted. In a subsequent note, however, Grouvelle speaks of only the second costa being "distinctly several times" (deutlich mehrmals) interrupted. In the specimens before me neither costa is quite entire (as the external one is) but the middle one is much more distinctly interrupted than the inner one.

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* Since writing the note on *D. perforata* I have ascertained that the Malayan genus *Bupala*, Pasc., presents the characters I have specified as exhibited by that insect, to which genus, therefore, I think I may safely attribute it.

S. costatus, Blackb. I believe this species to be identical with *Illestus productus*, Reitt., which will therefore stand as follows

Sparactus (Illestus) productus, Reitt.
S. costatus, Blackb.

PHORMESA.

P. (*Ditoma*) *torrida*, Blackb. This species is not a true *Ditoma* (vide supra).

P. thoracica, sp. nov. Minus depressa; sat opaca; ferruginea, capite pronoti disco et elytrorum maculis numerosis (his fascias 4 indeterminatas formantibus) obscure fuscis; prothorace sat fortiter transverso, postice quam antice fere duplo latiori, supra crebre fortius granulato-ruguloso, utrinque bicostato, costis exterioribus integris (interioribus prope marginem anticum introrsum subito versis et hic inter se fere conjunctis, postice introrsum sic ut laquea singula formant versis), lateribus irregulariter crenulatis sat arcuatis, angulis anticis fortiter productis sat acutis posticis retrorsum inclinatis anguste obtusis; elytris singulis 5-carinatis, interstitiis crasse biseriatim punctulatis. Long., $2\frac{2}{5}$—$2\frac{4}{5}$ l.; lat., $\frac{19}{10}$—$1\frac{13}{10}$ l.

In general appearance much like *P. torrida*, Blackb., from which it differs chiefly by the costæ of its pronotum and elytra less sharply defined, its prothorax very much more strongly narrowed in front and the hind angles of that segment obtuse (they are very sharply acute in *torrida*). Several species of *Phormesa* more or less resembling this one have been described from the Malay Archipelago, &c., but the descriptions of them are too slight to allow of confident identification,—not one of those known to me referring (e.g.) to the angles of the prothorax.

Tropical Australia (Port Darwin).

P. Grouvellei, sp. nov. Sat depressa; sat opaca; picea, capite antice prothoracis lateribus antennis pedibusque ferrugineis; prothorace sat fortiter transverso, antrorsum leviter angustato, supra confertim minus fortiter punctulato-ruguloso, utrinque bicostato, costis ut præcedentis (*P. thoracicæ*), lateribus leviter sparsim crenulatis fere rectis, angulis anticis modice productis sat acutis posticis acute rectis vix retrorsum inclinatis; elytris singulis 5-carinatis, interstitiis biseriatim granulatis. Long., $1\frac{3}{4}$ l.; lat., $\frac{7}{10}$ l.

Differs from the previously described Australian species of *Phormesa* by the uniform colour of its elytra and by the sculpture of the intervals between the elytral costæ consisting of rows of small granules. Its prothorax is very much less narrowed in front than is that of *P. thoracica*, and very much more

strongly transverse than that of *P. costata*, Macl. The sides of its prothorax are quite straight in the hinder part while in *P. torrida* they are quite strongly convergent hindward in the extreme basal portion of their length.

Australia (I am not sure of the exact habitat).

BUPALA.

Pascoe calls the antennæ of this genus ten-jointed, representing them as in this respect similar to those of *Synchita*. The species that I refer to this genus have antennæ similar in number of joints to those of *Synchita*, but I cannot call the antennæ of either ten-jointed without qualifying the expression by saying that the 11th joint is distinctly visible under a strong lens. Lacordaire qualifies the expression by the remark (in referring to *Synchita*) that the tenth joint has a small pubescent apical portion, which is, I think, undoubtedly the rudimentary eleventh joint. In the specimens before me it is a trifle more distinct than in *Synchita*. In Pascoe's figure of *Bupala* it is not represented, but I cannot think it is really absent in the insect. Pascoe defines the genus very briefly, and passes over the important character of the lateral structure of the prothorax with the remark—"prothorax haud marginatus." His figure, however, represents the prothorax as serrate laterally (which it is in the specimens before me). I suppose the "haud marginatus" refers to the absence of a reflexed edging. The Australian insects that I attribute to this genus present the character mentioned by Pascoe of hind coxæ somewhat widely separated *inter se*, but with the intercoxal process of triangular form. I may add that M. Grouvelle some years ago expressed the opinion that my *Ditoma perforata* would be better placed in *Synchita*. If, however, *Bupala* be accepted as distinct from *Synchita* these Australian forms belong to it rather than to the old genus. It is to be noted that the tenth joint of their antennæ is less globular than it is represented in Pascoe's figure, but this no doubt is a mere specific character.

B. Bovilli, sp. nov. Elongata; sat angusta; minus nitida; nigro-picea, capite antice prothorace antice elytrorum humeris corpore subtus antennis pedibusque plus minusve rufescentibus; capite pronotoque crebre sat crasse granulato-rugulosis; hoc quam latiori sublongiori, retrorsum nonnihil angustato, supra æquali, lateribus sat rectis dentibus parvis acutis circiter 10 armatis, elytris striatis, interstitiis sat planis sat crasse rugulosis seriatim albido-setulosis. Long., $1\frac{1}{3}$ l.; lat., $\frac{3}{10}$ l.

There seems to be no reason for separating this species generically from the S Australian species that I described as

Ditoma perforata. In both the upper surface is devoid of costæ and other protuberances, the eleventh joint of the antennæ rudimentary, the sides of the prothorax denticulate, the head without antennal sulci. It differs from *perforata* by its considerably smaller size, its more cylindric form (elytra scarcely wider than prothorax), the rugulosity of its elytra interstices, &c.

Northern Territory (Port Darwin); taken by Dr. Bovill.

B. dentata, sp. nov. Sat elongata; sat angusta; minus nitida; nigro-picea, antennis pedibus scutello et corpore subtus rufescentibus; capite pronotoque crebre minus grosse granulato-punctulatis; hoc leviter transverso, ante medium subito dilatato, antice quam ad basin multo latiori, supra æquali, lateribus acute serrulatis; elytris striatis, striis sat grosse punctulatis (puncturis in interstitiis fere confluentibus). Long., $1\frac{1}{2}$ l.; lat., $\frac{2}{3}$ l.

At once distingishable from *B. perforata*, Blackb., and *Bovilli*, Blackb., by the somewhat sudden widening of its prothorax in front of the middle, which causes the front margin to be very much wider than the base In this species the lateral margin of the head is minutely angular behind the eye, standing out (under a strong lens) as a very small tooth, and more conspicuous on the under surface.

S. Australia (near Adelaide).

EBA.

E. cerylonoides, Pasc.? An example from Port Darwin seems to agree very well with the diagnosis of this Malayan genus, nor can I find any notable distinctive character to suggest its being other than the typical species, which was described Journ. Ent. II, p. 129. It is an interesting addition to the Australian fauna. It bears much casual resemblance to the genus *Cerylon*.

MERYX.

I cannot satisfy myself that *M. rugosa*, Latr., *areolata*, Pasc., and *illota*, Pasc., are anything but one and the same species. The only definite character that Pascoe cites to distinguish his two species relates to the length and width of the prothorax. I believe the difference in the shape of the prothorax to be sexual; at any rate I have before me two examples of *M. æqualis*, Blackb., which were taken in company and which differ *inter se* fully as much in the comparative width of their prothorax as any two examples before me of the older species (which come from various localities in Victoria and Tasmania). This difference is certainly very considerable and might justifiably be regarded as specific if only a few specimens were available.

Latraille's description of *M. rugosa* is very short but Pascoe says that he has seen an example of it and considers it probably identical with his *illota* (Journ. Ent. I., p. 302).

TENEBRIONIDÆ.

CHALCOPTERUS.

C. Arthuri, sp. nov. Elongato-ovalis; sat nitidus, pronoto magis opaco; niger, elytris violaceo-aureo-vel viridi-iridescentibus; capite minus crebre punctulato, fronte media longitudinaliter lævi, oculorum interspatio antennarum articuli basalis longitudini latitudine sat æquali; sulcis ocularibus nullis; antennis quam corporis dimidium vix brevioribus; prothorace quam longiori fere duplo (postice quam antice ut 4 ad 3) latiori, leviter sat crebre (quam caput multo magis obsolete) punctulato, antice subsinuatim fortiter emarginato, a basi antrorsum (superne viso) subarcuatim angustato, basi obsolete sinuata, angulis anticis acutis sat productis posticis fere rectis; elytris haud striatis, fortiter minus crebre (fere ut *C. variabilis*, Blessig., ut a me definitus, vide P.L.S., N.S.W., 1893, p. 58) seriatim punctulatis, interstitiis crebre sat fortiter (quam *C. variabilis* multo magis fortiter) punctulatis; prosterno medio leviter obtuse carinato; tarsis nigro-setosis, posticorum articulo basali quam ceteri conjuncti vix breviori. Long, 5 l.; lat., $2\frac{2}{5}$ l.

In my tabulation of the genus *Chalcopterus* this species falls beside *C. intermedius*, Blackb. (P.L.S., N.S.W., 1893, p. 61), from which it differs *inter alia multa* by the very much larger seriate punctures of its elytra.

Queensland; from Mr. Lea (Brisbane), &c.

LONGICORNES.

SYMPHYLETES.

S. compos, sp. nov. Modice elongatus; piceus, pube pallide grisea sat æqualiter (areis nonnullis glabris exceptis) vestitus, supra hanc basin griseam notulis numerosis fulvo-pubescentibus et nonnullis niveo-pubescentibus superpositis (illis in facie maculatim, inter antennas lineatim, in prothorace transversim 4-lineatim, in elytris maculatim, in metasterno maculatim, in abdomine transversim lineatim, in pedibus maculatim et in tarsis subtus dispositis; his in prothoracis lateribus, in elytrorum lateribus circum humeri partem inferiorem et paullo pone mediam partem, in metasterni episternis, in femorum parte superiori, et in antennarum articulorum 2^{i}—10^{i} parte basali, sitis); capite haud convexo-elevato, linea longitudinali impresso, clypeo antice angustato et rotundato; oculis modicis, ut *S. nodosi*, Newm.,

granulatis et convexis sed paullo majoribus; antennis elytrorum apicem (maris paullo, feminæ vix) superantibus, subtus densissime longius ciliatis; prothorace brevi transverso cylindrico haud tuberculato; elytris in parte antica granulis nonnullis parvis instructis (his minus perspicuis), ad apicem sat recte truncatis.

Maris segmento ventrali 2° utrinque area dense brunneo-pilosa instructo; hujus margine interiori a segmenti margine anteriori medio ad segmenti marginem posteriorem curvato et hunc (prope marginem lateralem) vix attingenti. Long., $5\frac{3}{4}$—$6\frac{1}{2}$ l; lat., 2—$2\frac{1}{3}$ l.

In the above description I have not specified the position of the glabrous areas on the upper surface because it is impossible to say whether the two examples before me are absolutely free from artificial abrasion, although both have the appearance of being in very fresh condition. A large round humeral area is certainly naturally glabrous, and I suspect it alone is so, the other small glabrous patches being probably due to slight abrasion. The species is near *S. albocinctus*, Guér., from which it differs *inter alia* in not having a continuous white stripe (but only the edging of the external half of the glabrous humeral patch and a spot behind the middle) along the external margin of its elytra. From a *Symphyletes* which Mr. Gahan confirms me in regarding as *albocinctus* it also differs by its very much shorter and more strongly transverse prothorax, by its head being scarcely concave between the antennæ, &c. In the male example before me the anterior femora do not bear a spine.

N. Queensland (Hughenden); given to me by Mr. French.

RHYTIPHORA.

R. maculosella, sp. nov. Fem. Elongata; minus robusta; nigro-picea pube fulva et nivea ornata (hac maculas binas in elytrorum lateribus, illa in capite maculas numerosas parvas et lineas inter antennas circumque oculos in prothorace lineas transversas quatuor in elytris maculas numerosas parvas, formanti), mesosterno utrinque vitta fulva ornato, metasterno ad latera niveo-pubescenti in medio fulvo-maculato, abdomine cinereo et fulvo-variegato, femoribus anticis 4 cinereo-pubescentibus posticis fulvo-variegatis, tibiis obscure fulvo-ornatis; capite sparsim subtilius punctulato, supra sat fortiter elevato-convexo, linea longitudinali impresso, clypeo antice truncato; oculis modicis vix fortiter granulatis (quam *R. latifasciatæ*, Pasc., paullo minoribus paullo minus fortiter granulatis), lobo inferiori haud latiori quam longiori; antennis quam corpus vix longioribus, pube cinerea irregulariter variegatis, subtus pilis sat elongatis

dense fimbriatis, articulo 3° quam 1^us^ sesqui longiori; prothorace cylindrico, quam longiori vix latiori, ut caput punctulato, nec supra nec ad latera tuberculato; elytris ad apicem truncatis, antice granulis sat numerosis inordinatim instructis, postice puncturis (his prope medium sat grossis hinc retrorsum gradatim magis subtilibus) impressis.

This species is in general so like *Symphyletes albocinctus*, Guér., that it seems unsatisfactory not to place it near that insect, but it has the head strongly elevated above the base of the antennæ,—a character which Pascoe regarded as the essential one separating *Rhytiphora* from *Symphyletes* and which is the only character known to me by which they can be separated. The portions of the upper surface not bearing fulvous or white spots are glabrous and shining. The snowy-white pubescence of the elytra forms a spot on the lateral margin (behind the glabrous shoulder) which is continuous with similar pubescence on the side of the metasternum; it also forms a spot on the lateral margin a little behind the middle. Between the two white spots are two or three spots of fulvous pubescence which are variably more or less connected with each other. The disposition of the fulvous markings on other parts of the elytra and on the head and pronotum is much the same as in *S. albocinctus*.

Queensland.

R. uniformis, Blackb. I have before me two specimens from N. Queensland (sent by Mr. French) which I cannot distinguish from the type of *uniformis* except in their somewhat different colouring,—due I have no doubt to their being very fresh specimens. They bear sprinkled over the pale ashy pubescence of the upper surface (which suggested the specific name) numerous blotches of pale orange-coloured pubescence. This forms longitudinal lines between the antennæ, transverse lines on the pronotum, small spots of irregular shape all over the elytra, spots on the sterna and legs and fringes on the hindmargin of the ventral segments. The glabrous spaces on the type (mentioned as probably due to abrasion) are present in these fresh examples, and therefore are no doubt natural.

ABSTRACT OF PROCEEDINGS

OF THE

Royal Society of South Australia,

FOR 1901-2.

ORDINARY MEETING, NOVEMBER 5, 1901.

WALTER HOWCHIN, F.G.S. (Vice-President) in the chair.

The President apologised for non-attendance.

BALLOT.—Isaac Herbert Boas, B.Sc., and H. Gill Williams, L.D.S., as Fellows.

W H. SELWAY, referring to the late Professor Ralph Tate's natural history collections, asked if anything had been done that these might be preserved to the State. The CHAIRMAN said that so far nothing had been done, but that he was now in a position to deal with the matter.

EXHIBITS.—STIRLING SMEATON, B.A., a piece of sandstone, showing leaf impression, apparently Eucalyptus, from Island Lake, on the route to Tarcoola, and opal specimen from L. Hart. These were lent by J. W. Jones, Conservator of Water, for exhibition. WALTER HOWCHIN, F.G.S., showed specimens of Cambrian glacial clay and striated stones found in the Pekina Ranges, west of Orroroo, by Chas. F. Johncock, of Willowie. These are very characteristic of the formation as it occurs in other places.

W. H. SELWAY exhibited specimens of rare orchids, *Pterostylis cucullata* from the National Park, and *P. rufa* from the Gorge.

PAPERS.—"Descriptions of New Species of Corals from the Australian Tertiaries," Part iv., by JOHN DENNANT, F.G.S. "Notes on the Loranthaceæ of the Willochra Valley," by CHAS. F. JOHNCOCK. "Geological Section of the Mount Lofty Range," by C. L, WAINWRIGHT. "On Eucalyptus Behriana," by J. H. MAIDEN, F.L.S., Government Botanist. N.S.W.

ORDINARY MEETING, APRIL 8, 1902.

Professor E. H. RENNIE, D.Sc. (President) in the chair.

EXHIBITS.—WALTER HOWCHIN, F.G.S., brought under the

notice of the meeting an obsidianite exhibited by A. Ferguson, from Western Australia, some distance north of Coolgardie. Mr. Howchin observed that these stones, at one time thought to be of volcanic origin, are now more generally considered to be meteoric. They are found in many parts of Australia where no volcanic action has yet been discovered. Mr. Howchin also showed specimens of calcium phosphate recently discovered on Yarroo Station, Yorke Peninsula. It is found between reefs of Cambrian limestone in what appear to be waterworn hollows, and occurs in lenticular masses among triturated shale. Fossil trilobites of Cambrian age are found beneath the phosphates. Mr. Howchin mentioned that he had traced the Cambrian rocks which underlie the phosphatic beds almost uninterruptedly from Ardrossan to Kulpara. Edwin Ashby exhibited specimens of bird skins from Western Australia (*Cliniacteris superciliosus*) (*Cracticus nigrigularis*), the black-throated butcher bird being the first specimen from Western Australia; *Pterodocys phasianella*, ground forked-tail grauculus; *Petrœca rosea*, rose-breasted Robin found in the ranges of Victoria; *Acanthiza reguloides*, two specimens showing the light typical form of New South Wales and the dark form of this State, and several others of same genus. Stirling Smeaton, B.A., showed specimens of brown coal from Lake Phillipson bore of much the same character as that from Leigh's Creek. Mr. Smeaton drew attention to the peculiar interest of this discovery as probably indicating the south and west limits of the artesian basin, and as showing the probable existence of old lake beds in this neighborhood. Mr. Smeaton, as one of the delegates to the Australasian Association for the Advancement of Science meeting at Hobart in January, 1902, reported that the next meeting of the Association would be at Dunedin, New Zealand, in 1904. He also mentioned that the time of year for the meeting in Adelaide in 1906 had not been determined. J. G. O. Tepper, F.L.S., exhibited specimens of two grain beetles, *Calandra granariæ* and *Silvanus surinamensis*, and a bottle of grain which these insects had completely destroyed. Mr. Tepper also mentioned that a parasitic wasp of the family *Proctotrypidæ*, about $\frac{1}{16}$ inch long, was found associated with the beetles in the bottle of grain.

Papers.—"The Cretaceous Fossils of South Australia and the Northern Territory," by Robt. Etheridge, Curator of the Australian Museum, Sydney. W. Howchin, F.G.S., in introducing the paper, mentioned that it would be printed in quarto similar to the Callabonna Memoirs. A vote of thanks to the author, Mr. Etheridge, was passed. "Further Descriptions

of the Australian Coleoptera," by Rev. Thos. Blackburn, B.A. A vote of thanks to Mr. Blackburn for his paper was passed. J. G. O. Tepper read a short paper on a curious instance of luminosity in Ants (*Iridomyrmex*) observed by Mr. A. A. Styles, of the Public Library.

Ordinary Meeting, May 6, 1902.

Professor E. H. Rennie, D.Sc. (President), in the chair.

Ballot.—Walter George Woolnough, B.Sc., F.G.S., as a Fellow.

Exhibits.—Herbert Basedow exhibited the following shells in illustration of his paper: *Anapa cuneata* (Lam.), *Tellina deltoidalis* (Lam.), *Chione lævigata* (Sby.), *Risella melanostoma* (Gmelin), *Hemimactra ovalina* (Lam.), *Mactra polita* (Chem). A. C. Zietz, F.L.S., exhibited a number of Bower birds—the satin Bower bird (*Ptilonorhynchus violaceus*), in its satin blue coat, with a hen and young male bird, each greyish-green in color. A spotted Bower bird (*Chlamydodera maculata*), with bright lilac feathers on neck. A tooth-billed Bower bird (*Scenopœus dentirostris*), and Regent bird (*Sericulus melinus*). E. Ashby exhibited three specimens of the sub-family *Himantopodinæ*—a white-headed Stilt (*Himantopus leucocephalus*), a young banded Stilt (*Cladorhynchus leucocephalus*), the chestnut band not showing, and a red-necked Avocet (*Recurvirostra novæhollandiæ*).

Papers.—"A Brief Note on the Occurrence of a Raised Beach on Hindmarsh Island, South Australia," by Herbert Basedow. The position of the beach the subject of this paper is situated on the main track on Hindmarsh Island, about five miles from the Goolwa Ferry, near the mill, and consists of an imbedded, softish, calcareous sandstone capped by a thin layer of travertine and loose black soil, and is practically level. The sandstone, though extremely rich in molluscan remains in good preservation, yet lacks much variety of species. The most abundant are those laid on the table and mentioned above, and are species now inhabiting the neighboring seas. In places the sandstone gives way to a barren, rather fine-grained, sandrock, weathering conspicuously along the borders of the Island into shallow caves, with stalactitic protuberances hanging from their roofs, produced by the water carrying and depositing carbonate of lime round the roots of the present vegetation, which obviously form ready watercourses. This lime hardening round the roots forms a cement that resists the disintegrating action of the atmosphere better than the surrounding rock, and thus the

pendant masses are produced. The consolidation of this crust of calcium carbonate may ultimately kill the roots that they enclose. In many cases complete molecular substitution has taken place between the organic portions of the root and the calcium carbonate, whilst retaining the organic structure. The occurrence of a raised beach on Hindmarsh Island is another proof of the retreat of the sea in recent times, either by the gradual rising of the land as a whole, or, what seems the more likely, by the formation of marginal lakes now so common a feature on our south-east shores. The sandrock mentioned above is water-bearing at depths of six feet and upwards, the supply apparently being drawn directly from the River Murray. Mr. W. Howchin, F.G.S., mentioned that raised beaches are found at various points near the coast from Eucla to the Coorong. Salt Creek, which flows into the Coorong, has cut its way through a thick mass of seashells, forming cliffs six or eight feet high of shell matter. Mr. Howchin also stated that stalactitic action is common to most raised beaches, and may be seen at the Reedbeds, Brighton, Port Victor, and other places. He also stated that the elevation of the land near Adelaide is about 12 ft., whilst it has risen as much as 80 ft. in the South-East. Mr. Sam. Dixon stated that raised beaches are to be found along the south coast in the neighborhood of Esperance Bay and as far as Mount Barren. Mr. Edwin Ashby, referring to the shells shown by Mr. Basedow, pointed out that they were estuarine in character, but that on Hindmarsh Island, opposite Goolwa, a true marine shell is found, namely *Donax epidermia*. This mollusc is found on Middleton beach, and is known as a cockle.

Paper.—"Further Notes on the Botany of the Willochra Valley," by Chas. F. Johncock.

A vote of thanks was passed to those exhibiting specimens and to Mr. Johncock for his interesting paper.

Ordinary Meeting, June 3, 1902.

Walter Howchin, F.G.S. (Vice-President) in the chair.

Ballot.—R. H. LaB. Cummins, of St. Peter's College, as a Fellow.

Paper.—"Descriptions of New Species of Fossil Mollusca from Miocene Limestones near Edithburg, South Australia," by Herbert Basedow. Mr. Basedow mentioned that the specimens described in his paper had been referred by him to the late Professor Tate for description, but owing to his

illness and death this had not been done. "A Revision of Australian Hesperiadæ," by Edward Meyrick, B.A., F.Z.S., and Oswald Lower, F.E.S., Lond. This paper was introduced by Mr. J. G. O. Tepper, F.L.S., who exhibited some specimens of this family of butterflies, which are commonly known as "Skippers," because of their short, jerky flight. A. H. C. Zietz, F.L.S., exhibited eggs of the Northern Territory Bower bird, very rare, and of the Ewings Fruit Pigeon. He also exhibited the skin of a large Rufus Owl, probably a New Guinea species, and a skin of the Rainbow Pitta, and a very uncommon egg, that of the Drongo Shrike. Mr. R. Fleming exhibited a fine specimen of fresh water sponge, which Mr. Zietz stated was a species of Spongilla. Mr. Zietz exhibited a very interesting collection of bird skins and eggs collected by Mr. C. E. May in the neighborhood of Port Darwin, and presented by him to the Museum. Mr. J. G. O. Tepper, F.L.S., exhibited a piece of limestone from Mannahill forwarded by Mounted-Constable Waterhouse, of Crystal Brook, who supposed the markings on it to have been done by aborigines. Mr. Tepper explained that these were due to the action of certain algæ and lichens. The Secretary was instructed to write to Mr. Waterhouse and ask him to protect any native etchings he might any time know of from being disfigured. Walter Howchin, F.G.S., through the kindness of Mr. Zietz, Assistant Director of the Museum, exhibited some of the bone breccias from The Brothers Islands, Coffins Bay. Mr. Howchin described the conditions under which the deposits were probably formed, and mentioned that the determination of the fossil bones was not complete, but bones of large extinct kangaroos and emus, together with the cranium of a seal, the jaws of a wallaby, and bones of small marsupials, indeterminable, were known to occur. At the time of the deposition of these bones The Brothers Islands must have formed part of the mainland. Mr. Howchin also showed a lump of limestone from Port Lincoln forwarded by Mr. E. R. Bartlett, containing a bone determined by Professor Stirling to be the femur of a wombat. The matrix consisted of two classes of rock, the lower a granular foraminiferal limestone of uncertain age, and the other an upper crust of superficial travertine, in which the sub-fossil, with other smaller bones, was contained. Mr. Sam. Dixon's notice of motion of incorporation of this Society was read by the acting secretary, Mr. Edwin Ashby.

A vote of thanks was passed to those exhibiting specimens and giving papers.

Ordinary Meeting, July 1, 1902.

Professor E. H. Rennie, D.Sc. (President) in the chair.

Ballot.—A. G. Edquist and James Drinkwater Iliffe, B.Sc., were elected Fellows.

Nomination.—G. Jeffreys as a Fellow.

Exhibits.—W. Howchin, F.G.S., exhibited a sample of rock containing characteristic Miocene fossils obtained from the sinking of a well at Messrs. Sandford & Co.'s, Grenfell-street, at a depth of about 60 ft. Mr. Howchin stated that the same rock was met with in the well of the new Exchange Buildings. These occurring south of the outcrop at Government House Quarry are of some interest. A. H. C. Zietz, F.L.S., exhibited a young flounder, and remarked that whilst very young this fish is almost symmetrical, and swims with only a little inclination sideways, but gradually the twist in mouth, eyes, and body takes place as it becomes older. Stirling Smeaton, M.A., exhibited a Kangaroo Mouse (*Antechinus*) from the South-East, and galls of Casuarina (*Frenchia casuarinæ*). J. G. O. Tepper, F.L.S., laid a specimen of vanadium ore on the table, and exhibited a scale (*Cylindrococcus casuarinæ*).

The consideration of the notice of motion of incorporation of this Society was adjourned until next meeting.

Ordinary Meeting, August 5, 1902.

Professor E. H. Rennie, D.Sc. (President) in the chair.

Ballot.—G. Jeffreys, Lecturer on Woolsorting, School of Mines, as a Fellow.

Exhibits.—J. G. O. Tepper, F.L.S., a stem or root of curious growth; also a vine shoot attacked by scale (*Lecanium depressum* ?), which retained its green color although withering away. Mr. Tepper also exhibited a rare moth from Queensland, which had been presented to the Museum by Mr. Oswald Lower. A. H. C. Zietz, F.L.S., a partly dried specimen of Flying Fox (*Pteropus*), found about 100 miles east of Leigh's Creek. Edwin Ashby, a skin of Goshawk (*Astur approximans*), and mentioned that the brown markings are across the body in adult birds, but longitudinal on that of the young. Mr. Ashby also exhibited a skin of the Whistling Eagle (*Haliaëtus sphenurus*) from Blackwood, and the head of an Ibis. W. Howchin, F.G.S., some gastroliths from the River Murray, presented to him by Mr. Gill, the Under-Treasurer.

Mr. Samuel Dixon then proposed—(*a*) "That in the opinion

of this Society the time has come when it is desirable that funds should be provided with the object of assisting, co-operating with, and rewarding research in applied science or natural history which have a direct bearing upon the economic development of the State and the production of wealth from its natural resources, and also for encouraging research amongst all classes of the community. (*b*) That in furtherance thereof this Society be incorporated. (*c*) That an appeal be made to the public for funds to carry out the object aimed at. (*d*) That the Council be a committee, with power to add to their number, to formulate a scheme to attain the objects stated in clause *a*. Mr. DIXON said it was incumbent on the Fellows of the Royal Society to do their utmost to promote science and to place their institution on a stronger and sounder basis. They should cultivate lines of study which the large number of students at present coming forward from the University might be likely to take up. The Society should be provided with funds that would enable it to aid those who were pursuing promising investigations, but could not well afford the cost entailed in their experiments, and ought also to have an amount invested sufficient to yield interest for the purchase of medals to reward and encourage research. Every effort should be made to encourage the development of the brains of the community in other directions than that of money-getting. With the funds mentioned they would, of course, require a scheme for their proper management and allotment. He had no fear, although the Government were going in for retrenchment largely, that the grant from the State would be diminished, for it was generally recognised that only by the cultivation of the spirit of scientific research could communities prosper at the present day. Mr. ASHBY seconded, and the motion was carried unanimously. Mr. CHAS. F. JOHNCOCK wrote apologising for his absence, and expressing full approval of the motion for incorporation as it stands on the notice paper.

A letter was read from the Secretary of the Linnean Society of New South Wales calling the attention of the Society to the fact that the Queensland Government intended to retrench Mr. F. M. Bailey, the Government Botanist, which would prevent him finishing his work on "The Queensland Flora," and invited this Society to unite with other scientific bodies in petitioning the Premier of Queensland to allow Mr. Bailey to complete his work. The following resolution was then proposed by Mr. TEPPER, seconded by Mr. DIXON, and carried —"That this Society hears with sincere regret the intention

of the Queensland Government to retire Mr. Bailey from the position of State Botanist. It would respectfully urge that if this cannot be avoided, it may at least be delayed until the completion of Mr. Bailey's valuable work." The Secretary was instructed to forward the above resolution to the Premier of Queensland, and to inform the Secretary of the Linnean Society of New South Wales what had been done.

PAPER.—"Aboriginal Rock Painting on South Para," by Professor E. C. STIRLING, F.R.S.

ORDINARY MEETING, SEPTEMBER 2, 1902.

WALTER HOWCHIN, F.G.S. (Vice-President) in the chair.

The SECRETARY read a letter from the Chief Secretary's Office, Brisbane, Q., acknowledging receipt of letter of August 7, 1902, conveying motion passed by this Society urging that the services of Mr. F. M. Bailey, Colonial Botanist of Queensland, be retained until the completion of his work on the "Queensland Flora," to inform the Society that Mr. Bailey's services would be retained until the end of the present year to enable him to complete the work in question.

EXHIBITS.—Dr. MORGAN exhibited a number of bird skins from the Gawler Ranges. Amongst these were *Collyriocincla rufiventris*, *Micræca assimilis*, *Smicroruis brevirostris*, *Malurus callainus*, *M. assimilis*, *Amytis textilis*, *Acanthiza tennuirostris*, *A. pyrrhopygia*, *A. uropygialis*, *Phyrrholaemus brunneus*, *Cinclosoma castaneonotum*, *Calamanthus campestris*, *Eopsaltria georgiana*, *Pachycephala gilberti*, *Climacteris superciliosa*, *C. rufa*, *Glycyphila albifrons*, *Ptilotis ornata*, *Pardalotus ornatus*. J. G. O. TEPPER, F.L.S., shoot of Canna, in which the scale (*Dactylopius*) had caused decay from top downwards. This scale, very active for this class of insect, is about one-eighth inch long, not very numerous, and conceals itself in the sheath of the plant, from which it is not easily removed. A. H. C. ZIETZ, F.L.S., a skin of flame-breasted Robin (*Petræca phœnicea*). It is numerous in the Bassian subregion, and is found near the foot of the Adelaide hills on newly ploughed land. Mr. ZIETZ also showed the skin of the fantailed Cuckoo (*Cacomantis flabelliformis*) and of double-banded Dottrel (*Aegialitis bicincta*). The former bird is found in the gullies near Adelaide, but seems to leave during the breeding season. The latter was shot near Balaklava, South Australia. Was in nuptial dress, but breeds in New Zealand.

PAPER.—"Some New Australian Geometrina, &c.," by OSWALD LOWER, F. Ent. S., London.

Special Meeting, October 7, 1902.

Professor E. H. Rennie, D.Sc. (President) in the chair.

The proposed rules* for the Royal Society of South Australia (Incorporated) having been read over, the following notice of motion was drawn out and signed: "We, the undersigned, Fellows of the Royal Society of South Australia, hereby give notice that the rules hereto attached be the rules of the Royal Society of South Australia (Incorporated).

(Signed) Sam. Dixon.
Edwin Ashby.
Walter Rutt.
A. Zietz.
A. M. Morgan.

[* For copy of Rules see page 345.]

Annual Meeting, October 21, 1902.

Professor E. H. Rennie, D.Sc. (President) in the chair.

Exhibits.—W. H. Selway, a cephalopod in embryo stage.

The annual report and balance-sheet were read and adopted.

Election of Council.—President, Professor E. H. Rennie, D.Sc., &c.; Vice-Presidents, Rev. Thos. Blackburn, B.A., and Walter Howchin, F.G.S.; Hon. Treasurer, Walter Rutt, C.E.; Hon. Secretary, George G. Mayo, C.E.

Members of Council.—W. L. Cleland, M.B., Professor E. C. Stirling, C.M.G., F.R.S., &c., Samuel Dixon, W. B. Poole, Edwin Ashby, W. H. Selway.

New Rules.—The rules of the Royal Society of South Australia (Incorporated) were read by the Secretary and passed, subject to correction of Rule No. 5 and alteration of Rule No. 42, in which two Auditors were substituted for one Auditor.

Nomination.—William John Vandenbergh, J.P., Solicitor and Barrister, as a Fellow.

Papers.—"Descriptions of New Corals of the Tertiaries of Australia (Part V.)," by John Dennant, F.G.S. "Further Notes on the Australian Coleoptera," by Rev. Thos. Blackburn, B.A. "List of Fish of the Lower Murray," by A. H. C. Zietz, F.L.S., C.M.Z.S., &c. "List of the Described Genera and Species of the Australian and Polynesian Phasmidæ with Introductory Remarks," by J. G. O. Tepper, F.L.S.

President's Address.—"Some Modern Developments of Chemistry." A vote of thanks to the President for his interesting and instructive address was passed.

Apologies were received from the Hon. Treasurer and Auditor, and a letter from Mr. F. M. Bailey, expressing his deep-felt thanks to the Society for the kind sympathy they had shown him in his scientific work.

ANNUAL REPORT.

October 21, 1902.

The Council has to report that the leading feature of the year's work has been entomological, the principal contributors being the Rev. Thos. Blackburn, B.A.; Dr. Jefferis Turner, of Brisbane; Oswald Lower, F.E.S., Lond., of Broken Hill; and E. T. Meyrick, B.A,. now in England.

Vol. xxvi., Part I., of the Transactions was published in June last. Being a small number, it has only been issued to Fellows and members. When Part II. of this volume is ready for publication it will be bound up with Part I., and distributed to the various scientific bodies which receive the Transactions.

A valuable work on the "Cretaceous Fossils of South Australia and the Northern Territory," by Robt. Etheridge, of the Museum, Sydney, will shortly be published as one of the series of Memoirs.

The Malacological Section is now engaged in systematically revising the nomenclature of the South Australian mollusca belonging to the class *Pelecypoda*.

Two committees have been appointed—one to enquire into the whole question of the library and its arrangement; the other committee to examine and report upon the distribution of the Proceedings and Transactions.

With a view of extending the sphere of usefulness of the Society and increasing its value to the community, steps are being taken to form it into a corporate body and to establish a Research and Endowment Fund. By these means the Royal Society will be enabled to hold property for the purpose of encouraging scientific work among all classes of the community, and so assist in developing the resources of the State.

The Council emphatically endorses the sentiment of Mr. Samuel Dixon when proposing the motion for incorporation when he said that "it is now generally recognised that only by the cultivation of the spirit of scientific research can communities prosper at the present day."

During the past year six Fellows have been added to our numbers, whilst three have resigned and two have died. The membership now is 11 Hon. Fellows, 65 Fellows, 7 Corresponding Members, and 2 Associates.

THE TREASURER IN ACCOUNT WITH THE ROYAL SOCIETY OF SOUTH AUSTRALIA.

Dr.	£ s. d.	£ s. d.
October 1st, 1901.		
To Balance		241 7 0
" Subscriptions—		
Royal Society	55 2 0	
Field Naturalists' Section	15 2 6	
Malacological Section	1 10 0	
		71 14 6
" Government Grant		53 7 6
" Interest		6 13 11
		£373 2 11

Cr.	£ s. d.	£ s. d.
By Cost of Transactions—		
Printing	68 7 10	
Illustrating	19 5 9	
Publishing	7 12 6	
		95 6 1
" Cost of Memoirs—Illustrating ...		20 6 0
" Wages—Caretaker		3 0 0
" Printing, Postage, and Stationery ...		6 18 0
" Library—Shelving		3 0 0
" Grants-in-aid—		
Field Naturalists' Section	10 0 0	
Malacological Section	1 5 0	
		11 5 0
" Advertising		1 18 0
" Exchange on Cheques		0 2 9
" Balance in Savings Bank, Oct. 1, 1902 ...		231 7 1
		£373 2 11

Audited and found correct,
J. S. LLOYD, Auditor.
Adelaide, 6th October, 1902.

WALTER RUTT, Hon. Treasurer.

DONATIONS TO THE LIBRARY

FOR YEAR 1901-2.

TRANSACTIONS, JOURNALS, AND REPORTS.

Presented by the respective Editors, Societies, and Governments.

AUSTRIA AND GERMANY.

Berlin—Zeitschrift der Gesellschaft für Erdkunde, Band XXXVI., Nos. 2-6.

——— Die Deutsche Südpolar Expedition, 1901.

——— Verhandlungen der, &c., Band XXVIII., Nos. 4, 5, 6, and 10 inclusive.

——— Sitzungsberichte der K. Preuss. Akademie der Wissenschaften zu Berlin, Nos. 1 to 23 and 39-53, 1902.

——— Abhand. der K. Preuss. Meteorologischen Instituts, Band I., Nos. 6-8.

——— Ergeb. der Beobacht. an der Stationem, II. und III., Ordung im Jahres, 1897-1900, Heft 2, 3. Bericht über die Thatigkeit des Königlich Preuss. Meteorol. Instituts.

——— Regenkarte der Provinzen Brandenburg und Pommern, 1901; Regenkarte der Provinzen Sachsen und der Thüringischen Staaten, 1902.

——— Zeitschrift für Ethnologie, Thirty-third Annual Report, Heft 5 and 6, 1901; Thirty-fourth do. do., Heft 1, 1902.

——— Nachrichten über deutsche Alterthunsfunde, Heft 1 and 2, 1899; do., 2, 1900; do., 6, 1901; do., 1, 1902.

Fribourg—Berichte der Naturforschenden Gessellschaft zu Fribourg, Band XI., Heft 3; Band XII., Heft, April, 1902.

Giessen—Bericht der Oberhessischen Gessellschaft für Natur und Heilkunde, Thirty third, 1899-1902.

Göttingen—Nachrichten von der K. Gessellschaft der Wissenschaften und der Georg-August. Universitat Math. Phys. Klasse, 1901, Heft 2 and 3; 1902, Heft 1, 2, 3, and 4.

——— Ziele und Aufgaben der Akademien im 20 Jahrhundert von Zittel, 1900.

——— Geschaftliche Mitteilungen, Heft 2, 1901; do. do., Heft 4, 1902.

Halle—Leopoldina, Heft 35, Jahrgang, 1899; do., Heft 36, do., 1900.
——— Nova Aeta der K. Leop. Carol. Deuts. Cheu Akad. der Naturforscher, Band LXXIV., Nr. 2, 3; do., LXXVII., Nr. 2, 4.
Heidelberg—Berichte über Land und Forstwirth schaft in deutsch ostafrika, 1er Band, Heft 1, 2.
Kiel—Schriften des Naturwissenschaftlichen vereins für Schleswig-Holstein, Band XII., 1er Heft.
Munich—Sitzungber. der Math. Phys. Classe der K.B. Akad der Wissenschaften zu München, heft 3, 4, 1901 do., heft 1, 2, 1902.
——— Abhandlungen do. do., Band XXI., heft 2.
Nurnberg—Festschrift Naturhistorischen Gessellschaft, 1801-1901 (Sœcular Feier).
Vienna—Expedition S.M. Schiff "Pola" in das Rothe Meer Beschreibender Theil, Sept., 1897—März, 1898; Wissenschaftliche Ergebnisse, X.-XIII.
——— Verhandlungen der K.K. Geologischen Reichanstalt, Nos. 11-16, 1901; do. do, Nos. 1, 2, 5, 6, 7, 8, 1902; Jahrgang, No. 1, 1901.
——— Kaiserliche Akademie der Wissenschaften in Wien, Auzeiger Math.-Naturwissensch., Classe XXXVIII., Nr. 1, 2, 3.
——— Jahrgang, 1901, Nr. 4 8, 19, 21-26; do., 1902, Nr. 10-14.
——— K.K. Gradmessungs Bureau Astronomische Arbeiten, Band XII.
——— Astronomische Arbeiten des K.K. Gradsmessungs Bureau Protokolle, 1889-1892.
Trencsen—Society of Nat. Hist. Year-Book, 1900-1901.
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Adelaide—Government Geologist: Handbook of Mining, with Maps, August, 1901.
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———— Woods and Forest Department: Annual Progress Report, 1900-1901.
———— Observatory: Meteor. Observations, 1898.
———— Education Department: System of Education in South Australia.
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Auckland—The Auckland Institute: Report of Institute and Museum.

Brisbane—Queensland Flora, pt. 4: Hygrophyllaceæ to Elœagnaceæ.

——— Royal Society of Queensland: Proceedings, vol. XVII., pt. 1.

——— Geological Survey of Queensland: "Artesian Water Supply in the State of Queensland," by R. L. Jack, LL.D., F.G.S. Bulletin, Nos. 13 - 17. Annual Progress Reports, 1900 and 1901. Coal Beds of Waterpark Creek and Burrum Coal Field, 1902.

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——— Australasian Institute of Mining Engineers: Proceedings Annual Meeting at Melbourne, Jan., 1902; do., special do. at Bendigo, Mar., 1902. Transactions, vol. VIII., pt. 1.

——— Victorian Naturalist, vol. XIX., Nos. 1-6 inclusive, with list of members, &c.; vol. XVIII., Nos. 7, 8, 9, 10, and 12.

——— Royal Society of Victoria: Proceedings, vol. XIV., pt. 2; do., XV., pt. 1.

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Montreal—Canadian Record of Science, vol. VIII., Nos. 6 and 7

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Nantes—Bulletin de la Société des Sciences Naturelles de l'Ouest de la France, second series, tome I., No. 1, 2, 3, 4; Tremestris, do., tome X., No. 4, Trim. 1900.
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Paris—Bulletin de la Feuille des Jeunes Naturaliste, No. 373-377 and 379-383.
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——————— Fauna Hawaiiensis, *Hymenoptera parasitica*, vol. I., pt. 3.
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LIST OF FELLOWS, MEMBERS, &c.

NOVEMBER, 1902.

Those marked (F) were present at the first meeting when the Society was founded. Those marked (L) are Life Fellows. Those marked with an asterisk have contributed papers published in the Society's Transactions.

Any changes in the addresses should be notified to the Secretary.

Date of Election

HONORARY FELLOWS.

1893. *COSSMAN, M., Rue de Maubeuge, 95, Paris.
1897. *DAVID, T. W. EDGEWORTH, B.A., F.R.S., F.G.S., Prof. Geology Sydney University.
1888. *DENNANT, JOHN, F.G.S., F.C.S., Inspector of Schools, Camberwell, Victoria.
1876. ELLERY, R. L. J., F.R.S., F.R.A.S., Gov. Astron., the Observatory, Melbourne, Victoria.
1890. *ETHERIDGE, ROBERT, Director of the Australian Museum of N.S. Wales, Sydney.
1893. GREGORIO, MARQUIS DE, Palermo, Sicily.
1855. HULL, H. M., Hobart, Tasmania.
1892. *MAIDEN, J. H., F.L.S., F.C.S., Director Botanic Gardens, Sydney, N.S. Wales.
1898. *MEYRICK, E. T., B.A., Elmswood, Marlborough, Wilts, England.
1876. RUSSELL, H. C., B.A., F.R.S., F.R.A.S., Gov. Astron., Sydney, N.S. Wales.
1894. *WILSON, J. T., M.D., Prof. of Anatomy, Sydney University.

CORRESPONDING MEMBERS.

1881. BAILEY, F. M., F.L.S., Colonial Botanist, Brisbane, Queensland.
1881. *CLOUD, T. C, F.C.S., Manager Wallaroo Smelting Works, S.A.
1880. *FOELSCHE, PAUL, Inspector of Police, Palmerston, N.T.
1893. *MCKILLOP, REV. DAVID, Daly River Mission, N.T., Australia.
1886. NICOLAY, REV. C. G., Fremantle, W.A.
1883. *STIRLING, JAMES, Gov. Geologist, Victoria.
1893. *STRETTON, W. G, Palmerston, N.T., Australia.

FELLOWS.

1874. ANGAS, J. H., Adelaide, S.A.
1895. *ASHBY, EDWIN, Adelaide, S.A.
1902. BAKER, W. H., Parkside, S.A.
1893. *BEDNALL, W. T., Adelaide, S.A.
1887. *BLACKBURN, REV. THOMAS, B.A., Woodville, S.A.
1901. BOAS, ISAAC HERBERT, B.Sc., the University, Adelaide, S.A.
1886. *BRAGG, W. H., M.A., Prof. of Mathematics, University of Adelaide, S.A.
1883. *BROWN, H. Y. L., F.G.S., Gov. Geologist, S.A.
1882. BROWNE, L. G., Adelaide, S.A.

1899. Browne, T. L., Adelaide, S.A.
1898. Browne, J. Harris, Adelaide, S.A.
1893. Brummitt, Robert, M.R.C.S. Gilberton.
1879. Cleland, W. L., M.B., Ch.M., J.P., Colonial Surgeon, Resident Medical Officer Parkside Lunatic Asylum, Lecturer in Materia Medica, University of Adelaide, S.A.
1895. Cleland, JohnB ., M.D., Ch.B., Pathologist Prince Alfred's Hospital, Sydney, N.S.W.
1876. (L) Cooke, Ebenezer, Commissioner of Audit, Adelaide, S.A.
1895. Cooke, John H., Adelaide, S.A.
1902. Cummins, R. H. LaB., St. Peter's College, Adelaide, S.A.
1887. *Dixon, Samuel, Adelaide, S.A.
1896. Drummond, J. H. G., M.D., Pangarinda, Semaphore, S.A.
1893. Dudley, Uriah, White Rock S.M., Drake, N.S.W.
1890. *East, J. J., F.G.S., Perth, W.A.
1902. Edquist, A. G., Hindmarsh, S.A.
1899. Fergusson, Andrew, Agricultural School, Adelaide, S.A.
1886. Fleming, David, Adelaide, S.A.
1889. Fraser, J. C., Adelaide, S.A.
1880. *Goyder, George, F.C.S., Analyst and Assayer, Adelaide, S.A.
1896. Greenway, Thomas J., Chillagoe, Queensland.
1896 Hawker, E. W., F.G.S , Adelaide.
1896. *Higgin, A. J., Assistant Lecturer on Chemistry, the University, Adelaide, S.A.
1891. *Holtze, Maurice, F.L.S., Director Botanic Gardens, Adelaide, S.A.
1883. *Howchin, Walter, F.G.S., Lecturer on Geology and Palæontology, the University, Adelaide, S.A.
1901. Haslam, J. A., B.Sc., Registrar of the School of Mines and Industries, Adelaide, S.A.
1893. James, Thomas, M.R C.S., Moonta, S.A.
1900. *Johncock, Chas. F., Morphett Vale, S.A.
1902. Iliffe, James Drinkwater, B.Sc., Prince Alfred College, Adelaide, S.A.
1902. Jeffreys, G., Lecturer on Wool Sorting, School of Mines, Adelaide, S.A.
1899. Kleeman, Richard, Adelaide, S.A.
1898. *Koch, Max, Adelaide, S.A.
1884. Lendon, A. A., M.D. Lond., M.R.C.S., Lecturer on Forensic Medicine and on Chemical Medicine, the University, and Honorary Physician Children's Hospital, Adelaide, S.A.
1856. *Lloyd, J. S., Adelaide, S.A.
1897. Lea, A. M., Gov. Entomologist, Hobart, Tasmania.
1888. *Lower, Oswald, F. Ent. S. Lond., Broken Hill, N.S.W.
1874. Mayo, George G., C.E., Adelaide, S.A.
1897. *Morgan, A. M., M.B., Ch.B., Adelaide, S.A.
1884. Munton, H. S., Adelaide, S.A.
1859. (L) Murray, David, Adelaide, S.A.
1883. Phillipps, W. H., Adelaide, S.A.
1886. Poole, W. B., Adelaide, S.A.
1892. *Priestley, P. H., Parkside, S.A.
1885. *Rennie, Edward H., M.A., D.Sc. London, F.C.S., Professor of Chemistry University of Adelaide, S.A.
1869. *Rutt, Walter, Chief Assistant Engineer, Adelaide, S.A.
1891. Selway, W. H., Adelaide, S.A.
1893. Simson, Augustus, Launceston, Tasmania.
1857. *Smeaton, Thos. D., Blakiston, S.A.
1900. Smeaton, Stirling, B.A., C.E., Adelaide, S.A.

1871. Smith, Robert Barr, Adelaide, S.A.
1881. *Stirling, Edward C., C.M.G., M.A., M.D., F.R.S., F.R.C.S., Professor of Physiology University of Adelaide; Director South Australian Museum, Adelaide, S.A.
1886. *Tepper, J.G.O., F.L.S., Entomologist South Austraiian Museum Adelaide, S.A.
1897. *Torr, W.G., LL.D., M.A., B.C.L., Way College, Adelaide, S.A.
1894. *Turner, A. Jefferis, M.D., Brisbane, Q.
1889. Vardon, Hon. Joseph, M.L.C., J.P., Adelaide, S.A.
1878. *Verco, Joseph C., M.D., F.R.C.S., Lecturer on the Principles and Practice of Medicine and Therapeutics University of Adelaide, S.A.
1902. Vandenbergh, W. J., Barrister and Solicitor, J.P., Adelaide, S.A.
1883. Wainwright, E. H., B.Sc. London, St. Peter's College, Adelaide, S.A.
1878. Ware, W. L., J.P., Adelaide, S.A.
1859. Way, Rt. Hon. Sir Samuel James, Bart., D.C.L., Chief Justice and Lieutenant-Governor of South Australia, Adelaide, S.A.
1901. Williams, H. Gill, L.D.S., Adelaide, S.A.
1902. Woolnough, Walter George, B.Sc., F.G.S., Lecturer on Mineralogy and Petrology the University, Adelaide, S.A.
1886. *Zietz, A. H. C., F.L.S., C.M.Z.S., Assistant Director South Australian Museum, Adelaide, S.A.

ASSOCIATES.

1901. *Basedow, Herbert, Adelaide, S.A.
1901. Collison, Edith, B.Sc., Adelaide, S.A.

RULES

OF THE

Royal Society of South Australia

(INCORPORATED).

NAME.

1. The title of the Society is the "Royal Society of South Australia (Incorporated)."

OBJECTS.

2. The objects of the Society are the promotion and diffusion of science by meetings for the reading and discussion of papers and other methods.

CONSTITUTION.

3. The Society shall be constituted of the persons whose names have been duly enrolled as members, and who have not ceased to be members.

4. His Excellency the Governor of South Australia for the time being shall be requested to be the Patron of the Society.

5. Members shall be classed as Fellows, Honorary Members, Corresponding Members and Associates.

MANAGEMENT.

6. The general management of the affairs of the Society, together with the custody of its property, shall be vested in a Council of eleven Fellows, comprising a President, two Vice-Presidents, a Treasurer, a Secretary, and six other Fellows to be elected as hereinafter provided.

7. The exercise of any power vested in the Council may be controlled by the Society in general meeting.

8. Four members of the Council shall form a quorum, and may transact any business which the Council is authorised to transact.

9. In addition to any other powers hereby conferred upon them the Council shall—

Convene all meetings of the Society and determine what papers are to be read, and generally what business is to be transacted at such meetings:

Determine as to the publication in whole or in part of any paper so read:

Elect a member of Council to represent the Society on the Board of Governors of the South Australian Public Library, Museum, and Art Gallery of South Australia:

Receive the revenues and other moneys of the Society, and apply the same in furtherance of its objects, or as may be specially directed by the Society:

Provide for the safe custody of the seal, the original papers, and all other property of the Society:

Enter into and execute all contracts and engagements of the Society:

Prepare the annual report and balance-sheet:

Regulate the meetings of the Council as a majority thereof shall determine.

Members.

10. Members may be elected as hereinafter provided.

11. Fellows and Associates shall pay such subscriptions as may be prescribed.

12. Persons distinguished for their attainments in science may be elected as Honorary Members.

13. Persons who ordinarily reside more than ten miles from Adelaide, and who, by furnishing papers, or otherwise, have, in the opinion of the Council, promoted the objects of the Society, may be elected Corresponding Members.

14. Honorary Members and Corresponding Members shall not be liable for subscriptions.

15. Young men of not more than twenty-one years of age and ladies may be Associates.

Election of Members.

16. Every candidate for membership must be nominated in the prescribed form by two Fellows.

17. The nomination paper shall be lodged with the Secretary with the prescribed subscription (if any), and shall be submitted to the Council and the Society at their first following meetings, and the election shall be held at the next subsequent meeting not being a special meeting of the Society.

18. No person shall be eligible for election as an Honorary or Corresponding Member unless recommended by the Council.

19. Elections shall be by ballot, one negative in six excluding.

20. A candidate who has been so excluded shall not be eligible to be again nominated within one year of such exclusion.

21. An Associate shall be entitled to be enrolled as a Fellow upon signing an application in due form and paying the prescribed subscription.

22. Every person admitted shall have immediate notice thereof transmitted to him by the Secretary, accompanied by a copy of the rules, and shall be enrolled as a member.

Cession of Membership.

23. A member may resign his membership at any time by notice in writing to the Secretary, and shall thereupon cease to be a member.

24. If any Fellow or Associate whose subscription shall be more than twelve months in arrear shall fail to pay the same after application in writing by the Secretary therefor, the Council may cancel his membership, and he shall thereupon cease to be a member.

Restoration.

25. The Council may upon such terms as it shall think fit re-enrol as a member any person who shall have ceased to be a member.

Election of Council.

26. At each annual meeting the President and all other officers (except the Secretary) and two of the Fellows on the Council shall retire from office, and their places shall be filled by election, which if any Fellow shall so require shall be by ballot.

27. The Fellows to retire shall be those who have been longest in office since last election, or, in case of equal tenure of office, shall be decided by lot.

28. The Secretary shall hold office during the pleasure of the Society.

29. Retiring officers and Fellows shall be eligible for re-election.

30. If a member of the Council shall without leave or some reason which the Council shall consider sufficient absent himself from three consecutive meetings of the Council he shall be deemed to have vacated his office.

31. Every casual vacancy in the Council shall be filled up at the next meeting of the Society by election by ballot.

Seal and Sealholder.

32. The Common Seal shall have the name of the Society inscribed upon it, and shall be held by the Secretary, who shall for the purposes of the Act be deemed to be the Sealholder.

The Council shall have power to use the seal in the execution of any powers hereby vested in them or otherwise in relation to the affairs or business of the Society. The seal shall never be used except by the authority of the Council. At least two members of the Council and the Secretary shall sign every instrument to which the seal is affixed.

Meetings of the Society.

33. A meeting of the Society, to be called the Annual Meeting, shall be held in the month of October in every year upon a day and at a place to be appointed by the Council.

34. At the annual meeting the Council shall submit a report and duly audited balance-sheet, and the meeting shall elect the officers and members of Council for the ensuing year and transact any other business of which due notice has been given.

35 The Council may convene an ordinary meeting of the Society at any time.

36. The Council may at any time, and shall upon the requisition in writing of seven Fellows, specifying the purpose for which the meeting is required, convene a special meeting of the Society. The special business for which the meeting has been convened, and none other, shall be transacted at such meeting.

37. A Fellow may introduce two visitors at any meeting, other than a special meeting, upon entering their names in the visitors' book. Visitors shall not speak unless invited to do so by the Chairman.

38. Honorary and Corresponding Members and Associates shall not be entitled to vote at any meeting or take part in the business of the Society.

39. Seven Fellows shall be a quorum. If at any meeting a quorum is not present within thirty minutes after the hour of meeting, the meeting shall stand adjourned to a day and time to be appointed by those present, not being earlier than seven days. At the adjourned meeting the Fellows then present may proceed to business although a quorum may not be present.

40. Three day's notice at least shall be given of every meet-

ing or adjourned meeting and of the principal items of business to be transacted thereat.

41. Notice shall be given to the members resident in South Australia by circular or in such other manner as may be prescribed.

AUDITOR.

42. Two Fellows not being members of the Council shall be chosen at some meeting of the Society prior to the annual meeting in each year to audit the accounts and balance-sheet for the then current year.

BY-LAWS.

43. The Council may make, repeal, alter, and vary by-laws for regulating the—

Subscriptions to be paid and the officers to whom they are to be paid:

Forms to be used:

Procedure at meetings:

Requisites of papers to be read at meetings:

Notice to be given of meetings:

Encouragement to be given by the Society by means of medals, prizes, or otherwise to the promotion of science:

Determine the duties of the Treasurer, Secretary, and other officers:

And generally for the better carrying out the objects and purposes of the Society.

44. No by-law or repeal, alteration, or variation of any by-law shall have any validity unless approved by a majority of the Fellows present at a meeting of the Society of which due notice has been given.

45. The Society may by a majority of at least two-thirds of the Fellows present at an annual meeting or at any special meeting duly convened for the purpose make any rule or repeal, alter, or vary any existing rule.

46. In the construction of the rules of the Society, unless the subject or context requires a different meaning:

"Prescribed" means prescribed by by-law:

Words denoting the singular number only shall be deemed to include the plural and vice versa. Words denoting the masculine gender shall be deemed to include the feminine.

47. All rules and by-laws of the Society heretofore in force are hereby repealed.

APPENDICES.

FIELD NATURALISTS' SECTION

OF THE

Royal Society of South Australia

NINETEENTH ANNUAL REPORT OF THE COMMITTEE,

FOR THE YEAR ENDED 30TH SEPTEMBER, 1902.

Evening Meetings.—During the year ten evening meetings have been held, at which papers or lectures have been read as follows:—

1901.

Oct. 15—"Snakes," Jas. Aitken.

Oct. 31—"Australian Birds and Their Habits," D. Le Souef. (Special meeting in connection with Australian Ornithological Union.)

Nov. 19—Natural History Observations: "Papirius" and "A Frosty Morning," T. D. Smeaton. "Results of Three Days' Excursion to Mount Barker," W. H. Selway, J. W. Mellor, S. Smeaton, B.A.

Dec. 20—Conversazione at Hardwicke College.

1902.

April 15—"Easter Field Club Encampment at Port Noarlunga," E. Ashby.

May 20—"Australasian Science Association Excursion to West Coast of Tasmania," Edith Collison, B.Sc.

June 17—(Paper postponed through inclement weather.)

July 15—Review of papers read at Hobart Science Meetings, S. Smeaton, B.A.

August 19—"Starfish," R. H. La B. Cummins, B.Sc.

September 16—Chairman's address: "Evolution of Plants," S. Smeaton, B.A.

There has been no definite course of study at these meetings (as in the past two years), but much interesting and

useful information has been imparted. The lecture by Mr. D. Le Souef on "Australian Birds" is worthy of special reference, as it was given at a representative gathering of various scientific societies in Adelaide to inaugurate the meetings of the Australasian Ornithologists' Union.

The members were indebted to the Misses Tilly for an enjoyable conversazione at Hardwicke College, when, besides enjoying a pleasant social function, opportunity was taken to explain the objects of the Section. In addition to botany, which always occupies a prominent position both at indoor and outdoor gatherings, such subjects as "Starfish," "Snakes," and other topics incidental to the wide scope embraced by the operations of the Section have been dealt with.

Exhibits continue to form an important item at the evening meetings. Amongst them were a collection of beautiful Humming Birds, shown by Mr. A. Zietz, F.L.S., and several interesting exhibits by Mr. J. G. O. Tepper, F.L.S. At one meeting the unusual occurrence of showing an orchid new for South Australia was recorded, viz., *Caleya major*, which was found by Mr. A. J. Wilson, at Mylor, identified by Mr. J. G. O. Tepper, F.L.S., and painted by Miss C. A. Selway. Other rare orchids are dealt with under the reference to "Excursions."

Excursions.—Thirteen excursions have been held during the year, as under:—

1901. Locality.

Oct. 12—Golden Grove.
Nov. 9-11—(Three days) Mount Barker, &c.
Nov. 23—Mount Lofty and Norton's Summit.
Dec. 21—Dredging, Port River.

1902.

April 26—Dredging, Port River.
May 17—River Sturt, from Darlington.
June 26—Mr. H. Sewell's Nurseries at Payneham.
July 19—Athelstone and Black Hill.
Aug. 16—Highbury.
Aug. 23—Miocene Beds at rear of Police Barracks; also the Zoological and Botanical Gardens.
Sep. 1—Foothills north of Teatree Gully; also Golden Grove Scrubs.
Sep. 13—Happy Valley.
Sep. 27—Upper Sturt to National Park.

The most noteworthy of these excursions was the three days' visit to Mount Barker and neighborhood. Owing to its

occurring rather late in the season, not much was done as regards our native flora, but ornithological objects were fairly well represented. As a holiday outing and social function, however, it was especially successful, thanks largely to the hospitality of residents, particularly Mr. and Mrs. R. Barr Smith, Mr. and Mrs. T. D. Smeaton, and others. Perhaps the most satisfactory excursion, botanically regarded, was that to Golden Grove on October 12, 1901, when thirteen different species of orchids were collected. Among the fresh localities visited during the year may be mentioned the trip to Norton's Summit via Mount Lofty, the foothills north of Teatree Gully, and portions of Highbury and Black Hill scrubs. Though botany has occupied the chief attention, there have been two excursions of a geological character, two dredging trips, as well as a visit to Mr. Sewell's nurseries.

Whilst there has been no absolutely new discovery to record, some flowers have been recorded for the first time at these excursions, including the orchids *Pterostylis cucullata*, from National Park, and *P. rufa* from the Torrens Gorge. In addition to names already mentioned, the Section is indebted to Mrs. and the Misses Tomkinson, of Mount Lofty, and to Mr. and Mrs. H. Sewell, of Payneham, for hospitality extended to the members.

The attendance at both the evening meetings and excursions has been well maintained.

Native Fauna and Flora Protection.—A separate report is presented from this Committee, which shows that the National Park still occupies a prominent place in its deliberations.

Death of Professor R. Tate, F.G.S., &c.—The committee have to record with deep regret the death, on September 20, 1901, of Professor Ralph Tate, F.G.S., &c., who was one of the founders of the Section, and who in its earlier years rendered invaluable aid in the promotion of its objects by his scientific attainments and by his enthusiasm for the outdoor study of Nature.

Library.—Members are reminded that there are now at their disposal a number of useful books dealing with subjects, in which it may be presumed they are interested.

Financial.—The receipts from subscriptions amount to £15 2/6, and the disbursements to £10/14/6, while the Section has returned to the Royal Society £5/2/6 more than has been received from it. It should be remembered, however, that there has been no conversazione held or Proceedings printed for the last two or three years.

Membership.—There has not been a great accession of new members during the year, but some of those elected will probably prove useful acquisitions to the Section. The number of members on the roll is 70.

S. Smeaton, Chairman.
W. H. Selway, Hon. Sec.

Adelaide, 16th September, 1902.

FOURTEENTH ANNUAL REPORT OF THE NATIVE FAUNA AND FLORA PROTECTION COMMITTEE OF THE FIELD NATURALISTS' SECTION OF THE ROYAL SOCIETY OF SOUTH AUSTRALIA FOR THE YEAR ENDED SEPTEMBER 30, 1902.

During the past year the committee has not been engaged in any work of great importance.

The appearance in the "S.A. Register" of September 21, 1901, of a contributed article on the National Park, under the initials "R. O. C.," in which the writer, while professing to tell "how the reserve was secured," completely ignored the fact that this was done almost exclusively through the arduous exertions of our late Secretary, Mr. A. F. Robin and other members of this committee in obtaining the Act vesting this block of about 1,800 acres in trustees, called for the publication of a true history of the matter. The Secretary, therefore, compiled from various records a short statement of facts, showing that to our late Secretary was due most of the credit which had been lavished by "R. O. C." on another gentleman. This was published in "The Register" of October 7, 1901, a number of copies were struck off for distribution among those specially interested in the subject, and one was sent to each Commissioner of the National Park.

Before leaving this subject the committee place on record their regret that their original scheme with respect to the various bodies represented on the board was departed from. The intention was that each body should nominate a representative to be appointed by the Government, but when the Act passed, it provided for the heads of certain bodies to become ex-officio Commissioners, and the result cannot be regarded as satisfactory.

It is a matter for congratulation that the movement begun here for the preservation of the native fauna and flora has induced the taking of steps in this direction by each State of the Commonwealth, and that in at least two of them further

legislation is contemplated. So much remains to be done in some of the States that the committee hopes that so thoroughly patriotic a work as the preservation of our Australian forests and their peculiar flora, together with our unique but fast disappearing fauna, will be taken up enthusiastically by some such body as the Australian Natives' Association, and uniform legislation be secured throughout the Commonwealth before it is too late.

SAML. DIXON, Chairman.
M. SYMONDS CLARK, Hon. Sec.

Adelaide, 16th September, 1902.

FIELD NATURALISTS' SECTION OF THE ROYAL SOCIETY OF S.A.

Receipts and Disbursements for the Year 1901-2.

Dr.

Receipts.	£	s.	d.
To Balance brought forward	6	5	11
" Subscriptions	15	2	6
" Grant from Royal Society	10	0	0
	£31	8	5

Cr.

Disbursements.	£	s.	d.
By Postages and Sundries	4	9	6
" Printing	4	5	0
" Attendance	1	0	0
" Share Expenses of Mr. Le Souef's Lecture ..	1	0	0
	10	14	6
" Subscriptions as per contra paid over to Royal Society	15	2	6
" Balance in hand...	5	11	5
	£31	8	5

Audited and found correct.

J. W. BUSSELL,
J. S. LLOYD, } Auditors.

W. H. SELWAY, Hon. Sec. and Treasurer.

Adelaide, 15th September, 1902.

MALACOLOGICAL SECTION

OF THE

Royal Society of South Australia

The meetings of this Section have been regularly held throughout the year. The officers have been the same as the previous year, viz., Dr. Verco, Chairman, and Edwin Ashby, Hon. Secretary. The Section has lost two of its most zealous workers during the year through death, namely, Professor Ralph Tate, F.G.S., and D. J. Adcock, Esq.

The work of revising the list of South Australian shells has been vigorously prosecuted. The classification known as Zittel's has been adopted by the Section, and the work of revision is being carried out on these lines. Thirty-five genera belonging to the class *Pelecypoda* have been dealt with during the year, including a large number of species. A great many novelties have been shown, the larger portion of them being the results of Dr. J. C. Verco's dredging trips.

EDWIN ASHBY, Hon. Secretary.

September 30, 1902.

GENERAL INDEX.

[Generic and specific names printed in italics are described as new.

Aboriginal Rock Paintings, 208.
Acnissa pyrrhias, 180.
Acolasta pachnias, 155; *scolia*, 155.
Æthinodes, 307.
Agriophara horridula, 200.
Amphicrossa hemadelpha, 233.
Andraca *adoxima*, 184.
Anepius raucus, 30; *koebelei*, 30.
Anisobathra actinias, 221.
Annual Report, 357.
Anthela *aspilota*, 182; *neurospasta*, 182; *phœnicias*, 182.
Apaustus flavovittata, 100; lascivia, 100; papyria, 98; sunias, 101.
Apodecta monodisca, 189.
Archean Rocks of Southern Yorke Peninsula, 274.
Ardozyga tetralychna, 244.
Aristeis hepialella, 138.
Atheropla *chorias*, 140; *scioxantha*, 242.
Badamia exclamationis, 120.
Barronica, 17.
Basedow, H., Descriptions of New Miocene Mollusca, 130; Raised Beach on Hindmarsh Island, 324.
Binsitta effractella, 164.
Birds, exhibits of, 323, 324, 326, 327, 329.
Birthama *discotypa*, 190; *plagioscia*, 190.
Blackburn, Rev. T., Further Notes on Australian Coleoptera (XXX.), 16, (XXXI.) 288.
Blastobasis *homadelpha*, 171; *leucotoxa*, 171; *nephelias*, 170; *sarcophaga*, 169; *tarda*, 170.
Bledius *cowleyi*, 22; *pontilis*, 22.
Bombyx *oxygramma*, 213.
Bone Breccia from the Brothers Islands, 326.
Borkhausenia *sphaleropis*, 168.
Brachybelistis neomorpha, 195; pentachroa, 195.
Brachypeplus *barronensis*, 305; *cowleyi*, 304; *kemblensis*, 306; *koebelei*, 304; *olliffi*, 302; *wattsensis*, 303.
Brachypterus, see Notobrachypterus, 300.
Bupala *bovilli*, 317; *dentata*, 318.
Cacœcia *ophiodesma*, 251.
Cambrian Glacial Till, Pekina, 322.
Cambrian Limestone, Kulpara, 323.
Campanile triseriale, 130.
Capua *acrodesma*, 234; epiloma, 235; pentazona, 234.
Caradrina *atmoscopa*, 228; *callichroa*, 225; *lichenophora*, 224; melanops, 226; *ochroleuca*, 223; *pelosticta*, 224.
Cardita *dennanti*, 132.
Cardium *mediosulcatum*, 131.
Casyapa critomedia, 40.
Ceratophysetis sphærostricha, 164.
Ceratotrochus *exilis*, 261; *halli*, 262.
Cerycostola pyrobola, 163.
Chalcopterus *arthuri*, 319.
Cilea amabilis, 19.
Clambus *stinsoni*, 288; *tasmani*, 288; *tierensis*, 289.
Clathe *anthracica*, 186; *pyrsocoma*, 185.
Clerarcha *poliochyta*, 198.
Coeranica *antichroma*, 137.
Cœsyra *colonœa*, 139; discincta, 140; kershawi, 138; microstictis, 139; *mimopa*, 139.
Coleoptera, New Species Described, 16, 288.
Comarchis *epigypsa*, 212.
Comoscotopa leucopelta, 240.
Conocyathus *scrobiculatus*, 260
Corals, New Species from Australian Tertiaries, 1, 255.
Council, Election of, 330.
Crexa *hyaloessa*, 184; punctigera, 185.
Cryptarcha *obscurior*, 310.
Cryptophaga hyalinopa, 237; *isoneura*, 236.
Cryptophasa *byssinopis*, 205; *eucephala*, 193; eugeniæ, 205; hyalinopa, 204; panleuca, 205; *psilocrossa*, 203; sacerdos, 204.
Cyathosmilia *velata*, 263.
Darala *caltixantha*, 214; *heliopa*, 214.
Dasycomota pyrrhœa, 220.
Deltocyathus *subviola*, 4.
Dennant, J., New Corals from Australian Tertiaries, 1, 255.
Desmophyllum *johannense*, 3.
Diastictis *pycnochroa*, 230; *retinodes*, 229.
Dichelia *diphtheroides*, 252; placoxantha, 236; *scotinopa*, 235.
Dipterina *gnophodryas*, 254.
Ditoma: various Species Reviewed, 313.
Dixon, S., Motion to Encourage Scientific Research, 327.
Doddiana callizona, 188.
Doleromima *ceramora*, 160; *eumorpha*, 159; humerana, 158; tripunctella, 159.
Donations to the Library, 333.
Doratiphora *amphibrota*, 216; *aspidophora*, 218; brachyopa, 216; chrysochroa, 189; euchrysa, 215; eumela, 218; *hemistaura*, 215; *liosarca*, 217; *nephrochrysa*, 218; ordinata, 219; *perixera*, 216; quadriguttata, 215; *sphenosema*, 217; *stenora*, 189; vulnerans, 215.
Dudgeona *actinias*, 202.
Eba cerylonoides, 318.
Edible Fish of the Lower Murray, 265.
Edithburg, Miocene Mollusca from, 130.
Elassoptila microxantha, 206.
Emmiltis *achroa*, 229.
Entometa *cycloloma*, 186.
Eocene of Southern Yorke Peninsula, 272.

Eois *oenopus*, 249; *polygramma*, 249; *stenozoa*, 248.
Eomystis *triselena*, 240.
Epicoma *asbolina*, 183; *zelotes*, 183.
Erynnis angustula, 109; cæsina, 118; fulgida, 116; fuliginosa, 115; macleayi, 112; mathias, 117; olivescens, 114; palmarum, 110; sperthias, 113; ulama, 115.
Eucalyptus behriana, 10; hemiphloia, 11; incrassata *var* dumosa, 14; largiflorens, 14; odorata, 14; populifolia, 12.
Euchloris paraphylla, 229.
Eulechria *hymenæa*, 149; *ischnodes*, 150; leptomera, 241; *leucopis*, 241; *meselectra*, 148; *niveæa*, 147; *optalea*, 151; *phœnissa*, 147; *phoryntis*, 150; *piodes*, 148, *scotiodes*, 151; zemiodes, 149.
Euphiltra *chrysorrhoda*, 145.
Euproctis *amphideta*, 177; arrogans, 179; *chionitis*, 177; chrysophæa, 178; *euryzona*, 213; *habrostola*, 179; *holoxutha*, 178; *niphobola*, 179; *scotochyta*, 178.
Exometæca nycteris, 97.
Fellows, &c., List of, 342.
Field Naturalists' Section, 350.
Fish, Ed ble, of the Lower Murray, 265.
Geological Features of Southern Yorke Peninsula, 268.
Geometrina, New Australian, 248.
Glacial Clay of Southern Yorke Peninsula, 273.
Glacial Till, Cambrian, Pekina, 322.
Glycimeris *subradians*, 132.
Glyptoma *sculptum*, 26; *sordidum*, 26.
Greenway, T. C., and H. T. Phillipps, Notes on Geological Features of Southern Yorke Peninsula, 263.
Guestia adelphodes, 244.
Haptoncura ocularis, 306.
Hasora bilunata, 122; chromus, 125; discolor, 123; doleschalii, 126; hurania, 124; lucescens, 122; lugubris, 124.
Heliocausta dorsivittella, 146.
Hepialus *ombraloma*, 212.
Hesperiadæ, Revision of Australian, 38.
Hesperoptila arida, 137.
Hindmarsh Island, Raised Beach on, 324.
Holcotrochus scriptus, 1.
Homalium *morrisi*, 28; *tasmanicum*, 27.
Hoplitica *hepatitis*, 147.
Hydriomena *actinipha*, 248.
Hypercallia *trichroa*, 141.
Idæthina cincta, 307.
Illidgea *æthalodes*, 199.
Incorporation of the Society, 328, 330.
Iphierga *melichrysa*, 246; *pycnozoa*, 246.
Island Lake, Fossil Plants from, 322.
Johncock, Chas. F., the Loranthaceæ, &c., of the Willochra Valley, 7, 31.
Laelia *ostracina*, 181.
Lathrobium australicum, 20.
Leperina moniliata, 311.
Lepidoptera, New Australian, 133, 175, 212.
Lepidotarsa *argyropsis*, 145.
Leptarthra aulacodes, 253.
Leptobelistis asemanta, 198.
Leptomeris *tetrasticha*, 250.
Leptosaces *pytinæa*, 157; *schistopa*, 156.
Lethocephala callidesma, 219; *eremospila*, 219.
Leucocraspedium elegantulum, 18; *lugens*, 18, 288; *validum*, 17.
Lichenaula *allocrossa*, 196; candescens, 196; *castanea*, 197; comparella, 196.
Linosticha *autographa*, 152; *themerodes*, 152.
Lispinus *sulcipennis*, 27.
Litocrus *baccæformis*, 293; *lautus*, 290; noteroides, 293; *obscuricollis*, 292; *perparvus*, 291; *plagiatus*, 289; *sparsus*, 290.
Lophosticha psorallodes, 232.
Loranthaceæ of Willochra Valley, 7.
Lower, O. B., Revision of Australian Hesperiadæ, 38; New Australian Lepidoptera, 212; New Australian Geometrina, 248.
Lymantria aurora, 181.
Machæritis *naias*, 134; *pelinopa*, 133.
Macrobathra epimela, 168; *galenæa*, 167; *homocosma*, 167; *xanthoplaca*, 167.
Macroura *bicalcarata*, 309; brunnescens, 308; densita. 309; *inermis*, 310; latens, 309; nigra, 308.
Maiden, J. H., on Eucalyptus behriana, 10.
Malacological Section, 356.
Meretrix *spherícula*, 131.
Meryx, various species reviewed, 318.
Mesodina æluropis, 46; halyzia, 47.
Metallarcha *goudii*, 234.
Meyrick, E., Australian Hesperiadæ, 38; Lepidoptera, 133.
Micromerus amabilis, 293.
Mimemodes *koebelei*, 311.
Mimobrachyoma eusema, 243.
Miocene, Fossiliferous Beds of, under Adelaide, 327.
Miocene of Southern Yorke Peninsula, 271.
Mixodetis calyptra, 172; ochrocoma, 172.
Mollusca, New Species from Miocene, 130.
Momopola *cosmocalla*, 220.
Monoschalis *mimetica*, 200.
Native Fauna and Flora Protection Committee, 353.
Nearcha *anemodes*, 227.
Netrocoryne repanda, 43.
Notobrachypterus *crassiusculus*, 299; *lutescens*, 299; *pauxillus*, 300; testaceus, 300.
Notocrypta felisthamelii, 119.
Obsidianite from Western Australia, 323.
Ocinara lewinæ, 184.
Octasphales *chorderes*, 161.
Ocystola *æthopis*, 136; *chrysopis*, 135; *holoxantha*, 136; *microphanes*, 243; *misthota*, 135; *polemistis*, 134; *tephrodes*, 243.
Oecophoridæ, Australian, 133.
Oenochroa *homora*, 152.
Oenone *xenopis*, 227.
Oeophronistus australicus, 21.
Onychodes *rhodoscopa*, 228.
Oxytelidarum, 20.
Oxytelus *flavior*, 24; *parum punctatus*, 25; *wattsensis*, 23.
Parasa *atmodes*, 192; *corallina*, 192; *lozogramma*, 193.
Parasemus *adumbratus*, 296; *pallidus*, 297.
Parasmilia *hermani*, 5.
Paratheta philoscia, 174; *spodostrota*. 173; syrtica, 174.
Paurocoma molybdina, 230.
Pedois *anthracias*, 246; neurosticha, 158.
Peltonyxa *invalida*, 312.
Peltosaris triplaca, 141.
Periallactis monostropha, 173.
Peritorneuta circulatella, 162; *rhodophanes*, 162; *thyellia*, 162.
Phæosaces, 157.
Phalacrinus comis, 298; *compressus*, 297; *navicularis*, 298; *umbratus*, 297.
Phasmidæ, List of Australian and Polynesian, 278.
Phillipps, H. T. See Greenway and Phillipps, 268.

Philobota argyraspis, 142; *trimeris*, 241.
Phlœopola *epethistis*, 154.
Phœnicops beata, 41; denitza, 42; *porphyropis*, 43.
Phormesa *grouvellei*, 316; *thoracica*, 316; torrida, 316.
Phosphate rock from Yarroo, Y.P., 323.
Pilostibes *embroneta*, 203.
Platytrochus *airensis*, 256; *curvatus*, 258; hastatus, 257; vacuus, 259.
Plant Impressions from Island Lake, 322.
Plectophila discalis, 197.
Pleistocene of Southern Yorke Peninsula, 271.
Pleurota *lomographa*, 245.
Polylobus, 16.
Porthesia *euthysana*, 175; fimbriata, 176; *galactopis*, 176; *panabra*, 176, lutea, 177.
Procometis diplocentra, 200; *stenarga*, 199.
Promelopus *heliosema*, 222; *malacopis*, 221; *rhodocentra*, 222.
Proteininorum, 29.
Psaltriodes thriambis, 138.
Psecadia *anthracopsis* 165; heptasema, 166; hilarella, 166; postica, 165.
Pylarge *erebospila*, 250.
Pyrgroptila *zelotis*. 142.
Raised Beach, Hindmarsh Island, 324.
Research, Motion to Raise Funds for Encouraging Scientific, 328.
Rhytiphora *maculosella*, 320; uniformis, 321.
Rock Paintings, Aboriginal, 208.
Rules of Incorporation, 330, 345.
Saropla paracyla, 245.
Smyriodes *aphronesa*, 250.
Soronia simulans, 306.
Sparactus, various species reviewed, 315.
Sphyrelata melanoleuca. 155.
Stirling, Dr E. C., Aboriginal Rock Paintings, 208.
Susica *dochmosema*, 191; *milltocosma*, 191.
Symphyletes *compos*, 319.
Symphyta nyctopis, 187; *psaropis*, 187.
Tachinus novitius, 19.
Tagiades janetta, 45.
Talis *macroura*, 233.
Telesto andersoni, 66; atralba, 71; *bathrophora*, 82; chaostola, 65; *chrysotricha*, 59; compacta, 77; croceus, 79; crypsargyra, 58 *crypsigramma*, 81; *cyclospila*, 63; dirphia, 60; dispar, 67; dominula. 61; donnysa, 64; doubledayi, 72; drachmophora, 61; flammeata, 69; idothea, 68; ismene, 73; *lencostigma*, 73; mastersi, 55; monticolæ, 62; munionga, 56; ornata, 53; perornata, 52; perronii, 75; picta, 57; senta, 78; sexguttata, 74; *tymbophora*, 70; *xanthomera*, 80.
Telicota augias. 105; bambusæ, 107; marnas, 103; ohara, 104.
Tepper, J. G. O., Australian and Polynesian Phasmidæ, 278.
Tertiary Corals, Descriptions of New, 1.
Tetraph'aps *paroa*, 191.
Thalainodes *allochroa*, 232; paronycha, 231; tetraclada, 231.
Thosea *penthima*. 206.
Timandra *malacopis*, 228.
Tortricopsis *callichroa*, 144; *eusarca*, 144; *pyroptis*, 143.
Tortrix *anemarcha*, 236; *asthenopis*, 252; *paurozona*, 252.
Trachyntis epipona, 154; tetraspora, 241; *thrypticopa*, 153.
Trapezites argenteo-ornata, 91; croites, 88; gracilis, 93; *heteromacula*, 84; iacchus, 87; lutea, 90; maheta, 89; *paraphæs*, 93; petalia, 85; phigalia, 94; *sphenosema*, 92; symmomus, 86; tasmanicus, 96.
Trichloma *asbolophora*, 239.
Turner, A. J., New Australian Lepidoptera 175.
Uzucha hypoxantha 199.
Willochra Valley, Botany of, 7, 31.
Xantholinus olliffi, 20.
Xanthorrhoe *rhodacris*, 226.
Xyleutes *nephocosma*, 201; *zophoplecta*, 202.
Xyloryeta *amphileuca*, 238; *basileia*, 194; *parthenistis*, 237; *rhizophaga*, 194; *stereodesma*, 237; tetrazona, 238.
Yorke Peninsula Geological Features of, 268.
Zietz, A. H. C., Edible Fish of Lower Murray, 265.

CONTENTS.

PART II. (Issued December, 1902).

PAGE

MEYRICK, EDWARD, and OSWALD B. LOWER: Revision of the Australian Hesperiadæ 38

BASEDOW, H.: Descriptions of New Species of Mollusca from the Miocene Limestone near Edithburg (Plate 2)... 130

MEYRICK, EDWARD: Descriptions of New Species of Lepidoptera (Ægophoridæ) 133

TURNER, DR. A. J.: New Australian Lepidoptera 175

STIRLING, DR. E. C.: Aboriginal Rock Paintings on the South Para, Barossa Ranges (Plates 3 and 4) 208

LOWER, OSWALD B.: Descriptions of New Genera and Species of Australian Lepidoptera 212

——— ——— ——— Descriptions of New Australian Geometrina ... 248

DENNANT, J.: Descriptions of New Species of Corals from the Australian Tertiaries, Part V. (Plates 5 and 6) 255

ZIETZ, A. H. C.: List of the Edible Fish of the Lower Murray ... 265

GREENWAY, T. C., AND H. T. PHILLIPPS: Notes on the Geological Features of Southern Yorke Peninsula (Plate 7) 268

TEPPER, J. G. O.: List of the Described Genera aud Species of the Australian and Polynesian Phasmidæ 278

BLACKBURN, REV. T.: New Genera and Species of Australian Coleoptera (XXXI.) 288

ABSTRACT OF PROCEEDINGS 322

ANNUAL REPORT 331

BALANCE-SHEET 332

DONATIONS TO THE LIBRARY 333

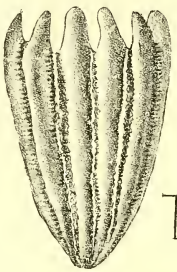
LIST OF FELLOWS, &C. 342

RULES OF THE SOCIETY 345

PROCEEDINGS, ANNUAL REPORT, AND BALANCE-SHEET OF THE FIELD NATURALISTS' SECTION 350

REPORT OF THE NATIVE FAUNA AND FLORA PROTECTION COMMITTEE 353

REPORT OF THE MALACOLOGICAL SECTION 356



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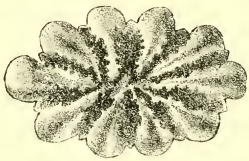

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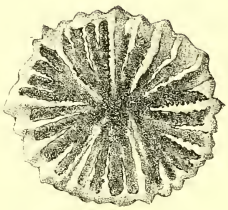

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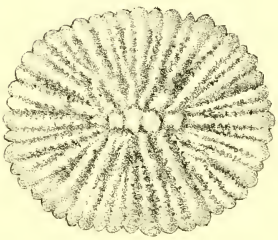

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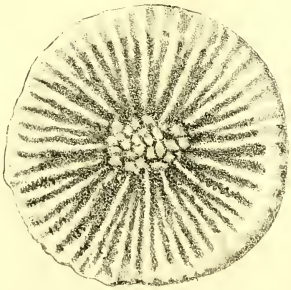

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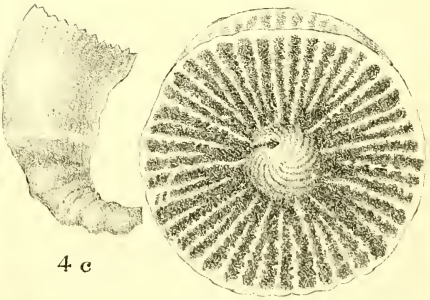


4c 4d

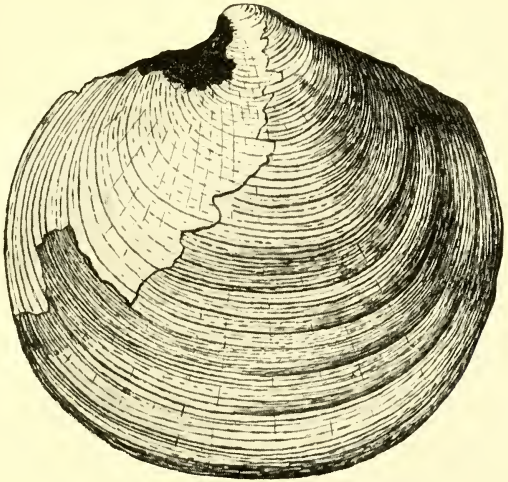
E. Trickett Delt

E.C.M. Lith.

1. Campanile Triseriale.

3. Gardium Mediosulcatum.

4. Cardita Dennanti.



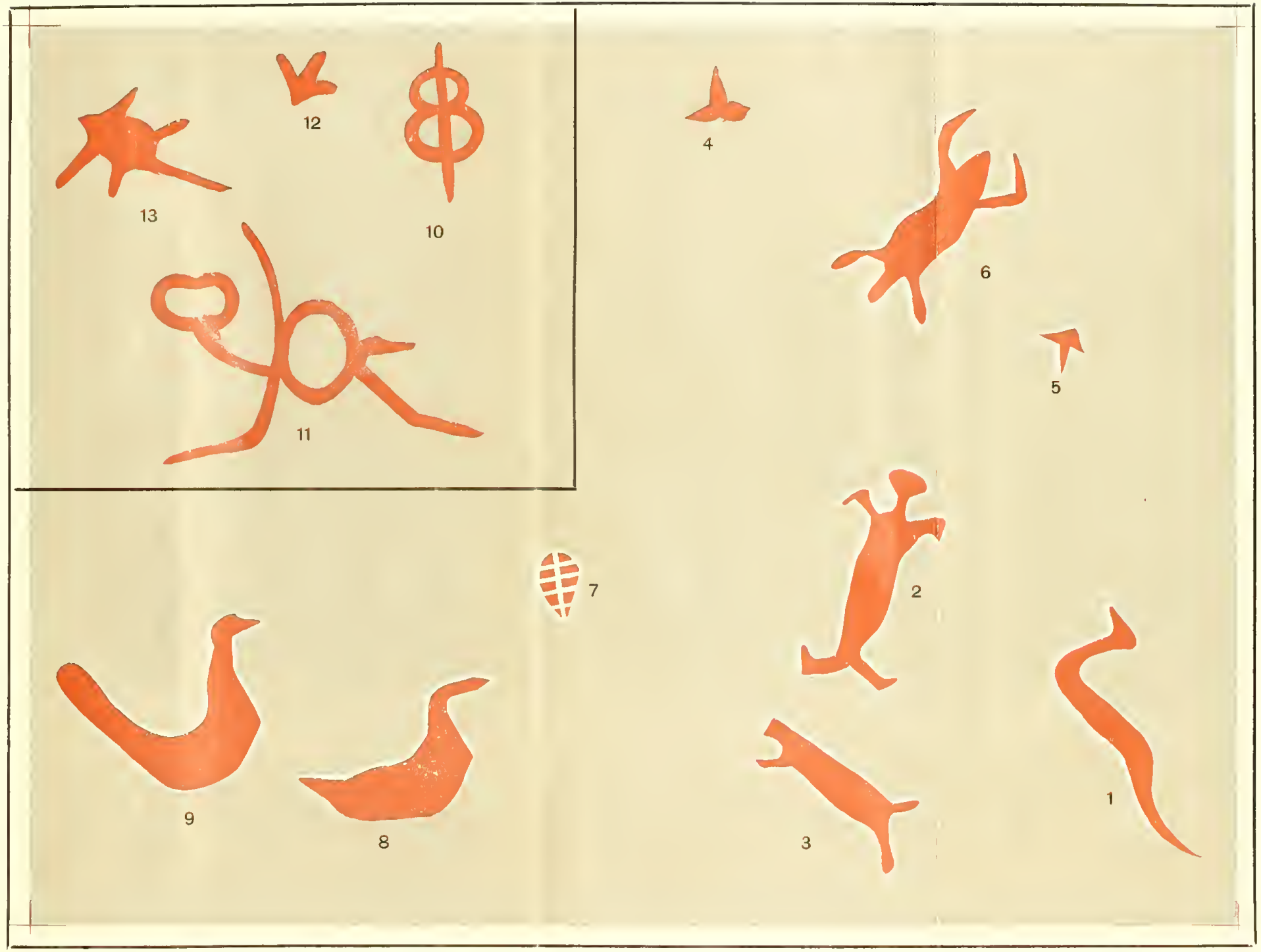
2. Meretrix Sphericula.

EXPLANATION OF PLATE III.

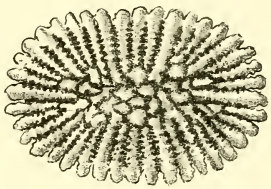
This plate gives a front view of the larger of the two shelters mentioned in the text. Two only of the drawings are clearly visible towards the right.

EXPLANATION OF PLATE IV.

Figures 1-9 represent drawings in the shelter represented by Plate III. Figures 10-13, in the inset at the top left hand corner, are from the smaller shelter. All the drawings on this plate are on the scale of one-sixth natural size but, for the sake of convenience in reproduction, their relative positions have not been strictly preserved.

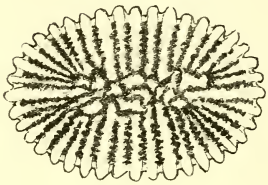

12
13
10
11
4
6
5
7
2
9
8
3
1

1a



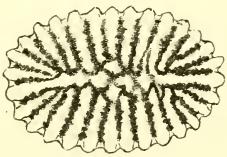
1b

2a



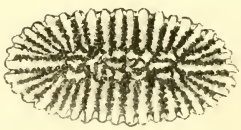
2b

3a



3b

4a



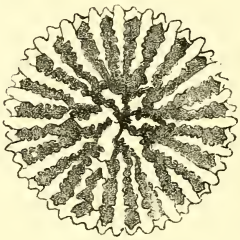
4b

E. Trichett et J. Dennant Delt

E.C.M. Lith.

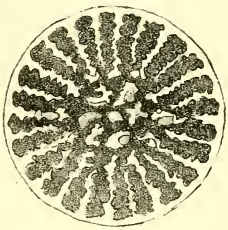
Vardon & Pritchard.

1a



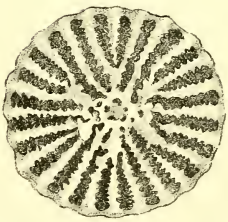
1b

2 a



2 b

3a



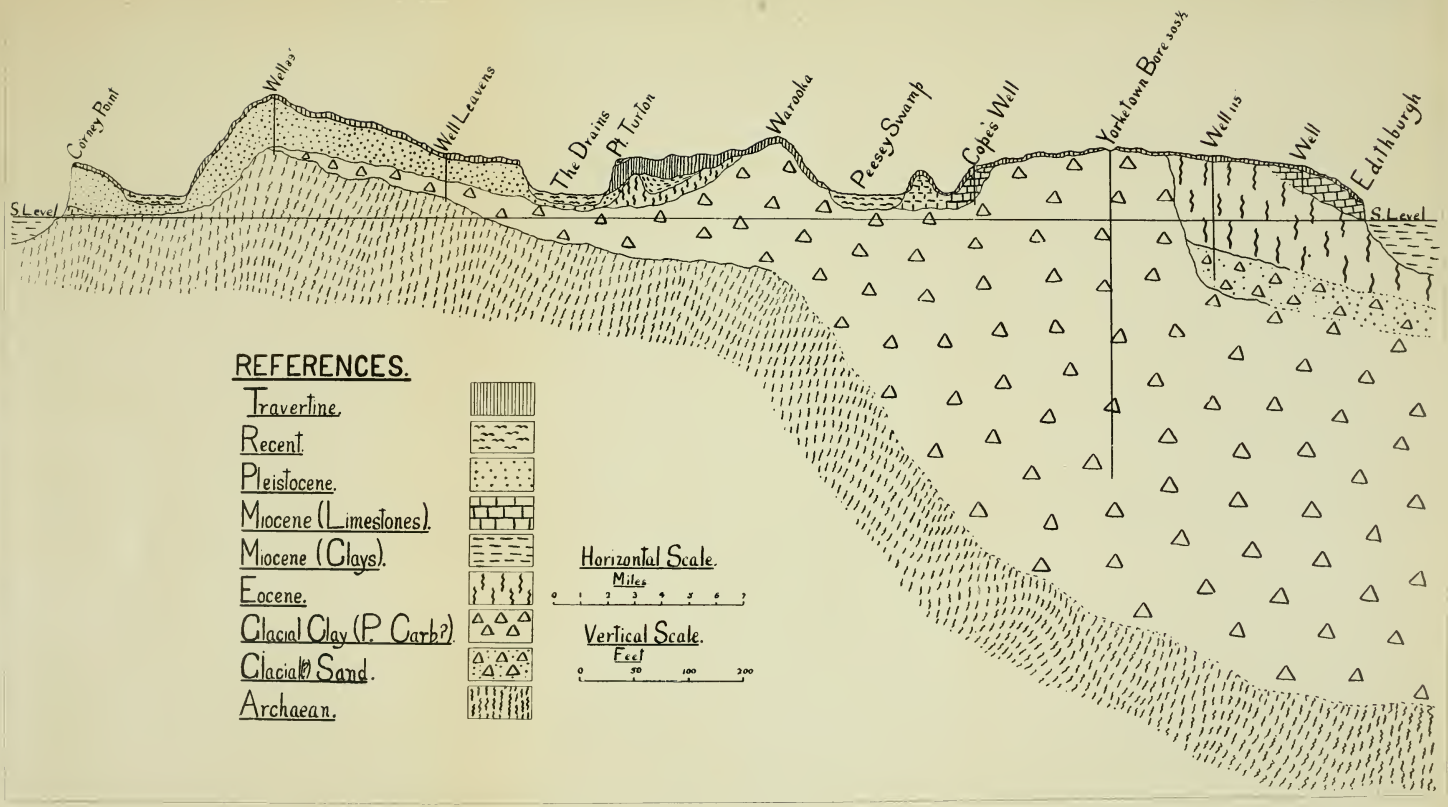
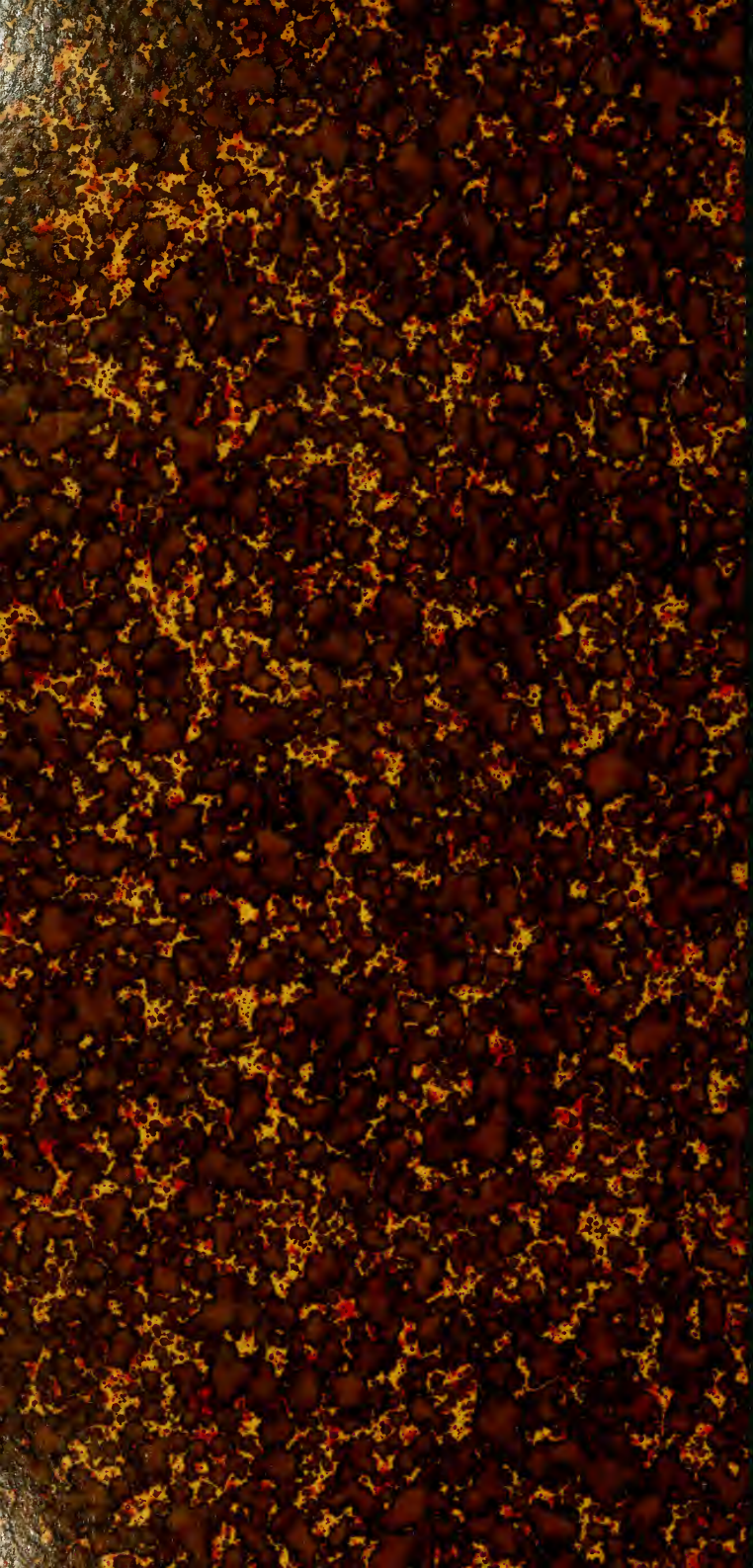
3 b

4 a

4 b

E. Trickett. et. J. Dennant. Delt. E.C.M. Lith.

Vardon & Pritchard


Corney Pond
Wells'
Well Leavens
The Drains
Pt Turton
Waraoka
Peesey Swamp
Cope's Well
Yorketown Bore 305½
Well 13
Well
Edithburgh
S. Level
S. Level
REFERENCES.
Travertine.
Recent.
Pleistocene.
Miocene (Limestones).
Miocene (Clays).
Eocene.
Glacial Clay (P. Carb?)
Glacial? Sand.
Archaean.
Horizontal Scale.
Miles
0 1 2 3 4 5 6 7
Vertical Scale.
Feet
0 50 100 200

3 2044 106 281 561